September/October 1990
Volume 17, Number 4

STEREO WORLD

NSA
NATIONAL
STEREOSCOPIC
ASSOCIATION

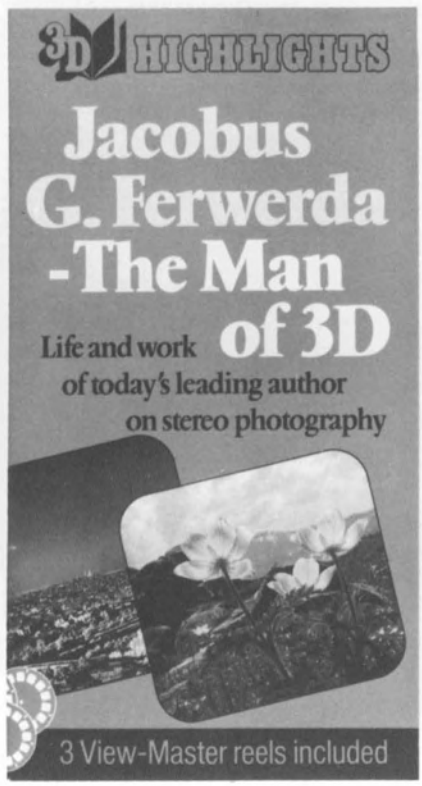
The Magazine of Stereo Photography

Niagara Falls • Loreo Camera

Jacobus G. Ferwerda

Jacobus ("Koo") G. Ferwerda, stereo photography author and a founder of the International Stereoscopic Union died July 3, 1990. His text on stereo photography, "The World of 3-D," was first published in 1982 and has become in many ways the sort of standard reference work for stereo photographers that Darrah's "World of Stereographs" has been for stereo collectors. "The World of 3-D" later went into a second edition, and has sold in more than 25 countries.

Ferwerda took his first stereo photos in 1929, and remained a constantly active stereo photographer and promoter of stereography for over 50 years. Having taken stereo photos in various formats in a number of countries around the world as well as back home in the Netherlands, he became interested in stereo projection as the best way to exhibit and promote stereography. Constructing his own mounting device and projection rig, he began doing 3-D projection shows for different groups in and around his home town.


3D HIGHLIGHTS
Jacobus G. Ferwerda -The Man of 3D
Life and work of today's leading author on stereo photography
3 View-Master reels included

Seen as many will remember him best, wearing polarized glasses and projecting stereo slides, Jacobus Ferwerda was stereographed by David Starkman at the 1979 PSA Convention in Hartford, CT.

He also created his own equipment for both close-up and wide base stereo.

In 1960, he was given access by the Dutch government to the "Delta" project for control of North Sea flooding in order to document the massive works in stereo slides. His thousands of images from the ten-year assignment, many being wide base pairs from the ground or air, were edited into a widely admired stereo slide show complete with music and commentary.

In the early 1970s, Ferwerda was one of the founding organizers of the Netherlands Society for Stereo Photography. With this group as a base, he initiated the organization of the first "International Congress for Stereoscopy" which was held at Wageningen, The Netherlands, in May, 1975. The over 200 enthusiastic participants from Europe, the U.S. and Australia agreed at this meeting to the foundation of the International Stereoscopic Union, which has brought stereo photography enthusiasts from around the world to its congress every two years since then.

Having already written articles for the Netherlands Society for Stereo Photography *3-D Bulletin*, Ferwerda became editor of the quarterly *Technical Letters* for the ISU. With the success of his first book, the 1977 "Stereo Photography Step by Step," in Dutch, an English edition was planned which grew into the much more comprehensive 306 page "The World of 3-D — A Practical Guide to Stereo Photography."

A stereo-illustrated biography of Ferwerda appeared last year in the *3-D Highlights* series from 3-D Book Productions under the title "Jacobus G. Ferwerda — The Man of 3-D." (See *Stereo World* Sept./Oct. '89, page 32.) Representing several aspects of his work over many years, 21 of Ferwerda's most impressive stereographs are reproduced on the three View-Master reels in the back of the book. The English edition is available through Reel 3-D Enterprises and A Photographers Place.

—John Dennis

STEREO WORLD

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Front Cover:

Bierstadt No. 677, "Chinese Embassy" is one of the less common views of Niagara Falls illustrating Part 1 of the series "Niagara Through the Stereoscope" by Mark A. DiLaura. Niagara Falls has been the subject of some of the earliest, the worst, and the best stereography to be found — and this Harvard thesis turned Stereo World *feature tells the stories behind many of the images and photographers involved.*

COMMENTS AND OBSERVATIONS
by John Dennis

Editor's View

With this issue, we start a three part article on the stereoscopic photography of Niagara Falls. Those who think they've seen enough views of the falls to last a lifetime and a half may be pleasantly surprised by the variety of images and depth of information in "Niagara Through the Stereoscope." The scholarly nature of the research involved is of course a goal of all those who contribute to *Stereo World*, but in this case stems from the fact that the series was adapted from author Mark DiLaura's 1988 Harvard Master's Thesis.

Research material of this scope and length stretches the capacity of a publication like ours to near the limits, and Mr. DiLaura's solution is the establishment of an academic style historical journal dedicated to documenting the work and lives of significant stereographers. The quarterly would be called *American Stereo Journal*, and would devote the space to detailed material on individual photographers only rarely possible in *Stereo World*. (See the side-bar to part 1 of the Niagara piece in this issue, and let Mark know if you are interested in the project as subscriber or contributor.) Currently, the only outlet for extensive research works on stereo history topics is the NSA Monograph Series. The quarterly journal, while it would not be an NSA publication, could deal with material too lengthy for *Stereo World* to easily handle but perhaps less than book or monograph length.

The Loreo, the new stereo camera featured in Newviews, is certainly not the first self transposing camera to be designed, but it may be the first to be produced for the consumer market. Its clever design means that images from two separate lenses end up properly positioned in ordinary drug store or 1-hour lab prints, ready to pop into its very basic stereoscope. The two lenses put it into a different category from "beam splitter" attachments or cameras which divide the field of view of a single lens via mirrors or prisms. (Technically, such devices should be called "frame splitters." A beam splitter involves a reflective surface which also allows light to pass *through*, so that both a transmitted image and a reflected one can be seen or manipulated within the same area.)

Unlike the single lens 110 stereo camera marketed in Japan a couple of years ago (which split the frame using mirrors in front of the lens) the Loreo is a 35mm camera. The concept has been carried out well enough to make many people wish its designers had taken it beyond the point-and-shoot market. An interesting camera *could* be made with better lenses, more precise glass mirrors, and full exposure and focus control, whether manual or automatic. This more advanced version would appeal to many stereo photographers —perhaps under the name *Moreo* . . .

Louis Smaus

As this issue was about to go to press, we were informed of the death of Louis H. Smaus, chairman of the NSA board of directors, on November 22 in San Francisco. He had been in poor health for a couple of months, and had recently entered a residential care facility. Our next issue will include a special tribute to Lou Smaus — who combined with such a friendly energy his interests in historic views, current 3-D technology, and the functioning of the NSA as a unique and growing organization. His passing followed by only about 3 months the death of his wife Jewel.

ISU – September in Paris

The International Stereoscopic Union is the only totally international stereo club in the world. The ISU is a club of individual 3-D enthusiasts as well as a Club of stereo clubs. Current membership is 600 from 30 countries world-wide. Although ISU caters mainly to the 3-D amateur, it also has much to offer professional stereo photographers. A major activity is a Congress every second year in one of the member countries. The next Congress is slated for late Sept. 1991 in Paris, France. These Congresses are 3-D extravagencias. The quarterly Journal of the ISU, *Stereoscopy*, is circulated to all members. It carries articles on 3-D techniques, articles from around the world on new equipment and literature. The articles are well illustrated with 3-D drawings and photos. Annual dues are $18.00, US funds. For an application to join for the 1991 calendar year, write to Paul Milligan, 508 La Cima Circle, Gallup, NM 87301. Phone (505) 722-5831. FAX: 1 (505) 863-4096.

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READER'S COMMENTS AND QUESTIONS

Letters

The Pocket Rotoscope

I found John Bradley's article "British Stereoscopic Cigarette Cards" (*Stereo World* May/June 1990), most interesting. The Rotoscope John wonders about did not employ mirrors or prisms as he speculates but nevertheless was one of the most amazing little stereoscopic viewers you are ever likely to see. Apart from springs and the two lenses, it is entirely constructed of tinplate, gold in color with yellow and gold paintwork on its exterior.

What makes this very attractive viewer so amazing is its ability to fold up to look like a miniature book about three inches high by one and a half inches deep. Spine thickness is about three-eighths of an inch. No less than sixteen separate metal pieces are used to construct the POCKET ROTOSCOPE which is complete with septum, variable lens separation and focusing adjustment. The natty little device was protected by its own patent — registered #442342.

The viewer was marketed by The Rotary Photographic Company Ltd. of 12 Union Street London and manufactured in their factory at West Drayton, Middlesex. The little viewer could normally be purchased separately and complete with twelve

high quality photographic views all of which could be held in the Rotoscope's card holder. Twelve card sets of different subjects were available.

A set of 215 "Views of the World" stereoscopic cigarette cards was issued in Australia by WD & HO Wills in 1905 through to 1908 and probably preceded the release of the 270 card British series. More than half of the Australian views are of Australian and New Zealand scenes and presumably most views in this lot are different to the British set. The front format of the Australian views are identical to those from the northern hemisphere. Apart from the first 50 views, the rear side advertises two of the tobacco products, i.e. Capstan Navy Cut Tobacco and Vice-regal mixture. The former for cigarettes, the latter for pipes. The first 50 numbered views are unprinted on the backside.

Ron Blum,
Oaklands Park, Australia

Smyth's Synch

As I sat staring at "Euphorbia Canariensis on the Sea Coast of Orotava," (May/June, 1990, p. 25), I began noticing what may be the first stereo movie. The boy on the left side of this view appears to have turned his head to the left on the right side picture, and to the right on the left side picture.

Either Mr. Smyth's stereo shutters were way out of synch, or he took two separate views and combined half of one with the other half of the other.

At any rate, the patient subject in the lower center of the view(s) held tight even though a great claw from one of the plants seems about to engulf him.

Frank J. Boyer, Jr.
Hinsdale, IL

The same year that Smyth took that view (1856) Brewster published his text The Stereoscope. *On page 154 Brewster mentions the "animated" effect in stereo portraits taken sequentially when viewed with alternating eyes. Novelty views soon appeared making use of this "movie" effect.*
—Ed.

Binoculars or Rangefinder?

Referring to Vol. 17, No. 1, Mar./April 1990, on the back cover and also on page 22, the picture shows a soldier looking through a "stereoscopic rangefinder." I believe the picture refers to the German Army.

In my days (ca. 1932) of college ROTC Field Artillery training, the army issued a binocular optical instrument looking exactly like the one referred to, and this was called "Battery Commander's telescope." It

(Continued on page 23)

PHOTOGRAPHIC & STEREOSCOPIC
VIEWS
OF THE FALLS
WINTER & SUMMER
BY
S. MASON.
FOTO RAFIAS
DE LA CATARATAS.

Niagara Falls

What troops of tourists have encamped upon the river's brink
What poets shed from countless quills Niagaras of ink!
What artist tried to fix the evanesent bow
Of waters falling as they fell two hundred years ago.

Colonel Peter A. Porter

by Mark A. DiLaura

Niagara Through the Stereoscope

This study examines the history of stereo photography at Niagara Falls during the latter half of the 19th century. Of particular interest and concern to this research was the exploration of the professional work and careers of Charles Bierstadt, George Barker and George E. Curtis, who were the three most prominent stereographic photographers of Niagara Falls during that time. Very little is recognized today of the very important contributions made by outstanding Niagara Falls photographers during this critical period in the history of photography. This study has been undertaken to redress this historical oversight.

An extensive review of primary sources, including photography magazines and local newspapers published between the late 1840's through the turn of the century, plus an examination of over 12,000 stereographs, yielded information about the artistic and technological contributions of these men during a critical period in the development of photography. Much of this information in unknown, forgotten or overlooked in modern accounts of the history of photography. In a time when there were no rules or established traditions in photography, these men helped to set the standards for photographic art and helped to popularize more efficient production of high quality prints. The popularity of stereoscopic photography provided incentive for continued research on improvements in photographic technology, to supply the demand for stereographs.

The first installment of this three part series covers the photographic history of Niagara Falls and the work of Charles Bierstadt. Parts 2 and 3 will cover George Barker and George E. Curtis.

Why have people been so fascinated by Niagara Falls since it was first described by Samuel de Champlain in 1604? Champlain never saw the Falls himself, instead he relied on information supplied by Indian guides. Nevertheless, he expressed a sense of wonder as he described the vast amount of water that descended from a great height, and over a wide rock shelf. During the next eighty years or so, various missionaries and explorers added their own descriptions stressing horrible danger, each more imaginative than the other, containing more fantasy than fact, since none of these reporters had actually seen the Falls. Europeans were hungry for information about the 'New World', and these accounts paralleled the tabloids of today, which assured a ready audience among the literate people of that period in history.

In 1678, Father Louis Hennepin, who had accompanied LaSalle on a mission to set up a permanent base on the Niagara River, wrote the first actual eye-witness description of Niagara Falls, accompanied by a sketch, which was published in Paris in 1683. His account, which was translated and distributed widely throughout Europe, emphasized fearful danger and thunderous noise. Indeed, his work was so popular that he revised it fourteen years later with considerable embellishment. For instance, in his first account, he had overestimated the height of the Falls to be five hundred feet, which he later revised to six hundred feet, although modern estimates vary from one hundred sixty-seven to one hundred eighty-five feet. Father Hennepin's description of the area was more accurate in other respects the second time around, however. (Exaggeration of statistics about the Falls is a continuing tradition on the part of present-day guides.)

During the early 18th century, false ideas and fantastic images of Niagara Falls were so firmly fixed in the minds of Europeans that in 1765, Benjamin Franklin was moved to write the following parody in a London newspaper, "The grand leap of the whale up the Fall of Niagara is esteemed by all who have seen it, as one of the finest spectacles in nature."

With the publishing in 1821, of a sketch book that depicted a truer representation of Niagara Falls, nothing of the aura of grandeur was really diminished, and travelers were more and more interested to view for themselves this natural phenomenon that ranked with the pyramids as one of the wonders of the world.

Niagara Falls was symbolic of raw power and natural beauty. Mastery over this natural wonder, with all its

power, offered a challenge to man. The Industrial Revolution of the 19th century represented a harnessing of that raw power, and made possible the advancement of technology that would change civilization forever. The completion of the Erie Canal in 1825 spanned the length of Upper New York State and came to the doorstep of Niagara Falls and the Great Lakes. This technological accomplishment symbolized the first major conquest of the American West in the age of manifestation.

With the railroad link between the canal and Niagara in 1836, vastly increased numbers of tourists were able to visit the Falls and view them at first-hand. Its overwhelming grandeur has been movingly described in prose and poetry. Charles Dickens was among the tourists, and during his celebrated tour of America in 1842, he expressed his reactions in the following words:

> *It was not until I came out on Table Rock, and looked - Great Heaven, on what a fall of bright green water! - that it (Niagara's vastness) came upon me in its full might and majesty. Then, when I felt how near to my Creator I was standing, the first effect, and the enduring one - instant and lasting - of the tremendous spectacle was Peace. Peace of Mind: Tranquility: Calm Recollections of the Dead: Great Thoughts of Eternal Rest and Happiness: nothing of Gloom or Terror. Niagara was at once stamped upon my heart, an image of Beauty: to remain there, changeless and indelible...*

In the early 19th century, landscape painting emphasized the sublime grandeur of nature, and Niagara Falls became a preferred subject as the epitome of America the Sublime. The birth of photography in 1839 helped change the focus in landscape painting to literal interpretation of nature, and painters began to work from photographs in order to achieve precision. The realism made possible by stereo photography influenced artistic taste, creating an expectation for the same quality of three-dimensional illusion in painting. The finest example of accomplishment in this technique is the painting *Niagara* by Frederick E. Church, completed in 1857 and notable for its detail and three-dimensional illusion. This huge (42 inches by 90 inches) canvas excited awe and admiration in America, and was equally admired and lavishly praised by English art critics when it was shipped across the Atlantic to be exhibited in London.

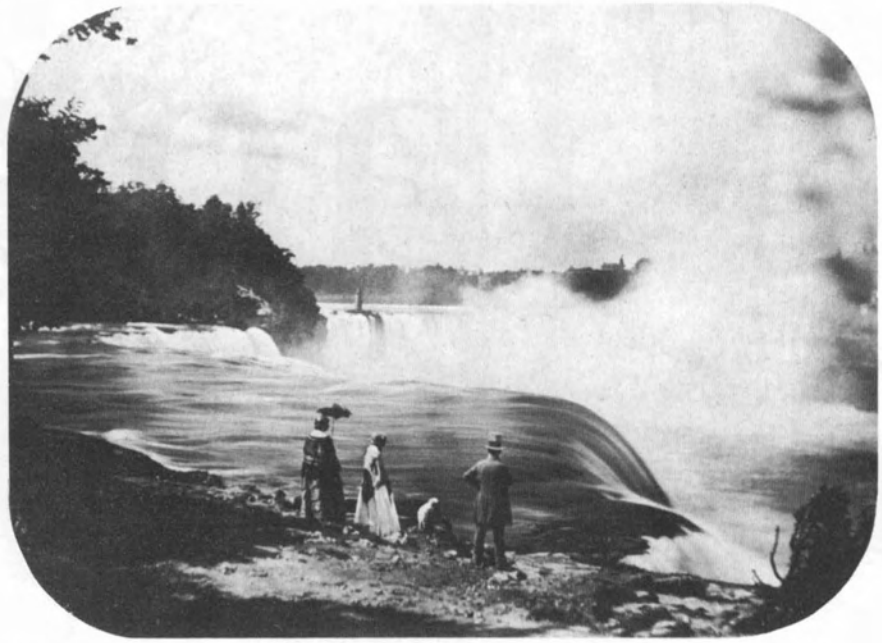


Fig. 1. Tourists stand by the brink of the American Falls in an early (c 1853) daguerreotype by Platt D. Babbitt, first resident photographer at the falls.

As there is magic in beholding Niagara Falls, so too, there is magic in creating photographic imagery. Niagara Falls became the mecca of photography in the mid 19th century, and there were more photographs taken of Niagara Falls than of any other landscape in the world during that century. Early photographers used the same vantage points as had been used by painters, but it was hard to capture the 'Sublime' in photography. Due to this limitation of the medium, the shift in focus from the sublime to detailed studies emerged.

The earliest known photograph of Niagara Falls was taken about 1843 by H.L. Pattinson, which was reproduced as an etched illustration. In 1845, the Langenheim Brothers of Philadelphia produced five daguerreotypes, which formed a panoramic view of both the American and Horseshoe Falls at Niagara. In the summer of 1846, Professor Highschool, who was also from Philadelphia, made daguerreotypes of the Falls and the Niagara River Rapids from different vantage points. These expeditions marked the beginning of photographic pilgrimages to Niagara Falls.

By 1853, Niagara Falls had its first resident photographer, Platt D. Babbitt. Most of his work consisted of informal group portraits of tourists standing by the brink of the American Falls. These were popular souvenirs which recorded proof that the tourists had actually been there. In these daguerreotypes, Babbitt was able to capture clouds in the scene, a photographic break-through, in which no one else had been able to succeed, even in Europe. (See figure 1) One of Babbitt's early daguerreotypes was "Man on the Log" (See figure 2) depicting the aftermath of a boating accident in which a Mr. Avery was stranded in the river near the brink of the Horseshoe Falls. After attempts to save him failed, this unfortunate man was swept over the waterfall to his death.

During the 1850's, stereoscopic photography marked the beginning of the great era of photography of Niagara Falls, which was to last for seventy years. Stereographs were in vogue, and more of these were produced of Niagara Falls than of any other subject in the world. In 1857, an Art Journal commented, "Hundreds of pictures have been painted and descriptions written to make us acquainted with Niagara Falls; but until now, with the viewing of stereoviews of the Falls, we seem to have been utterly ignorant concerning this - one of the wonders of the world."

The Langenheim Brothers returned to Niagara Falls in 1854, and made a series of documentary stereographs. These views were the first

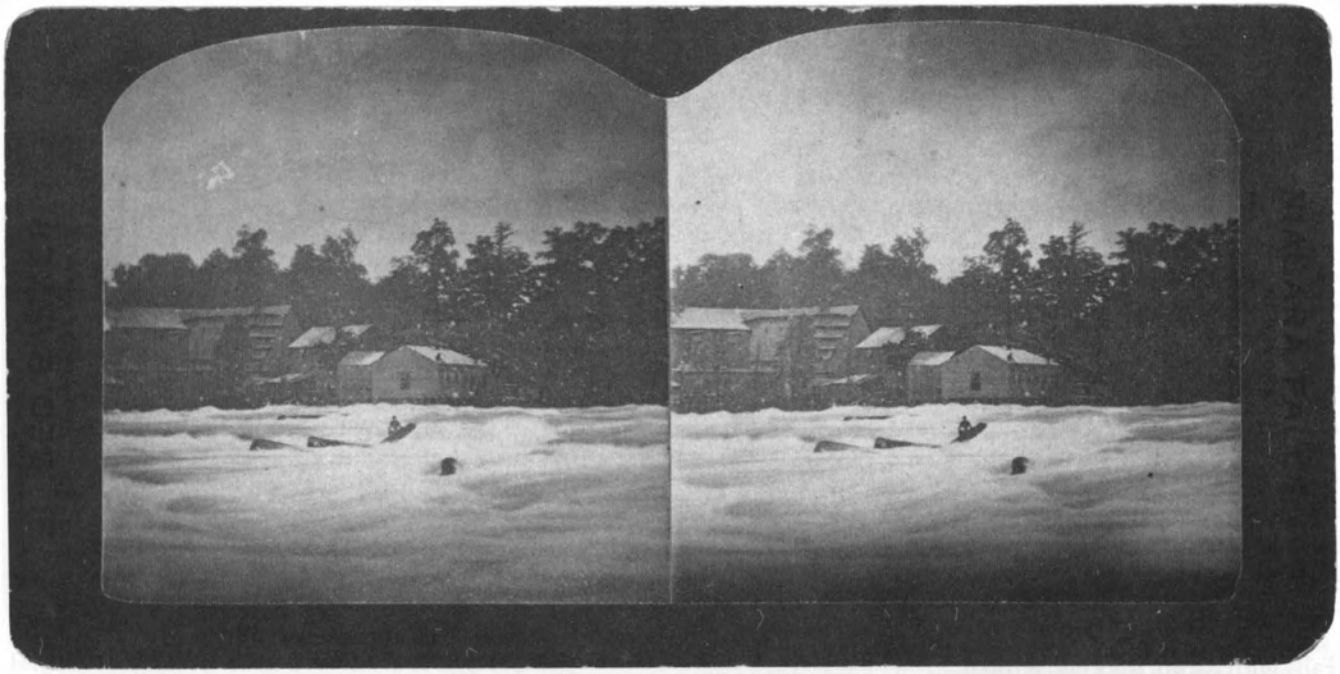


Fig. 2. Babbitt's "Man on the Log", published later as a flat "stereo" view by his one-time apprentice George Barker and captioned "Niagara — Avery in the Rapids." (All stereographs from the author's collection except as noted.)

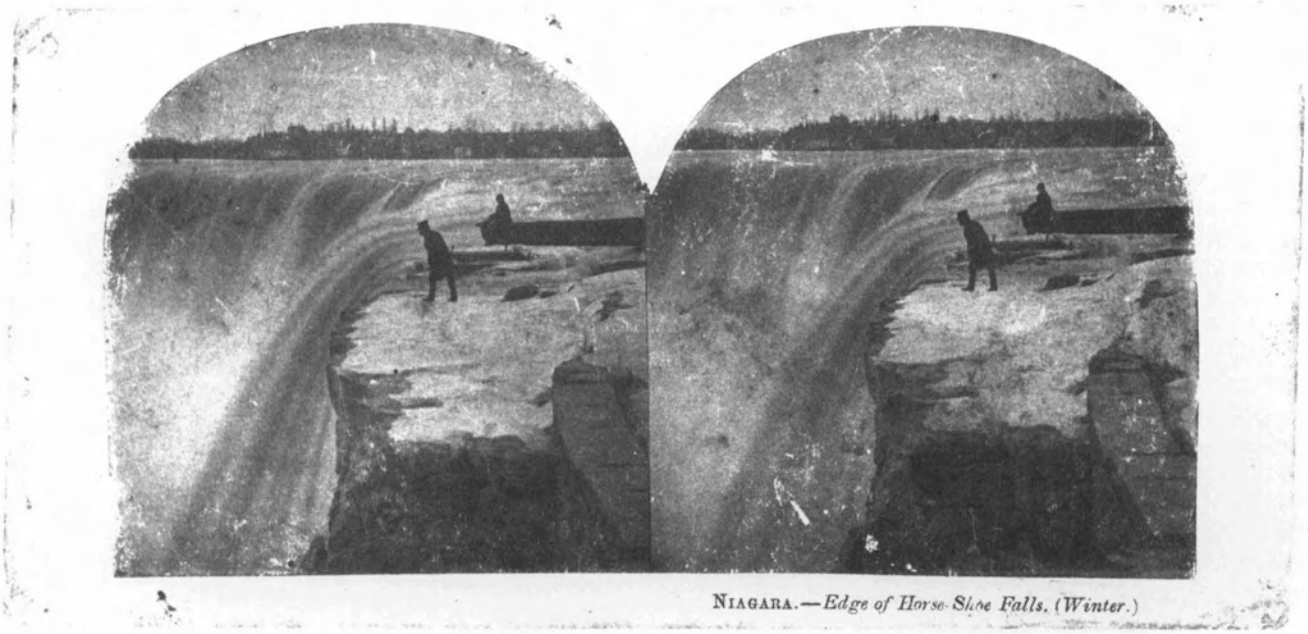
commercially distributed collection of stereographs of American scenery. (See figure 3) Unfortunately, the poor quality (flat contrast) of the paper stereographs, and the primitive stereoscopes which could not be focused, made this venture a failure.

Commercial success was much on the minds of photographers, and many were seeking solutions for these problems. In 1860, with the refined Holmes stereoscope, and the improved photographic albumin paper, which had been perfected in 1861, stereophotography became extremely popular. After the American Civil War, these view holders for stereographic photographs were as common in middle class homes as are the ubiquitous television sets today.

Platt Babbitt made stereographs of the Falls in the late 1850's which were distributed nationally by E. Anthony of New York City, whose company would become one of the large stereographic publishers of that time. These views were framed in the typical photographic style of the time; very frontal and from an unobstructed vantage point. (See figure 4) Babbitt's stereographs of people at Niagara include one of Jean Francois Gravelet, better known as "Blondin," who, on August 17, 1859, carried his manager on his back across the Niagara River Rapids by means of a tightrope.

Blondin's acrobatic feats astonished the world, and the following summer, tourists traveled to Niagara from far distances to witness his incredible act. He performed at the

Fig. 3. "Niagara — Edge of Horse Shoe Falls. (Winter.)" by the Langenhiem Brothers.



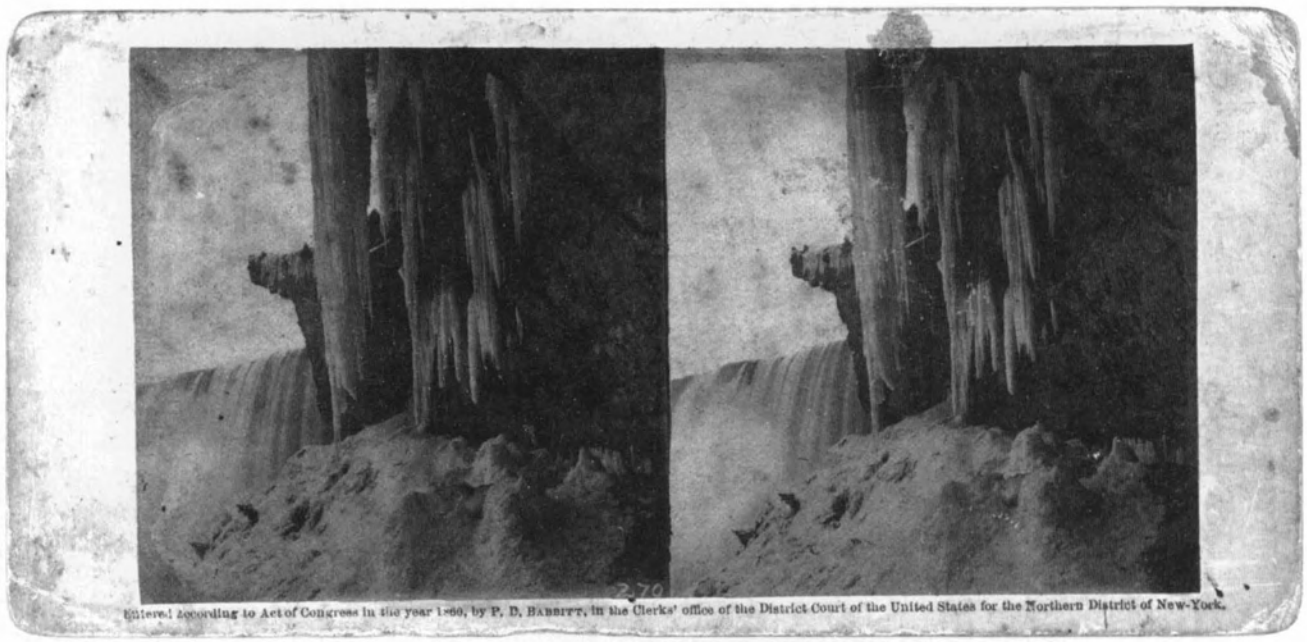

270
Entered according to Act of Congress in the year 1860, by P. D. BABBITT, in the Clerks' office of the District Court of the United States for the Northern District of New-York.

Fig. 4. Babbitt view distributed by E. Anthony as No. 270, "NIAGARA IN WINTER — VIEW FROM BELOW TABLE ROCK, SHOWING THE HORSE SHOE FALL WITH THE IMMENSE ICICLES APENDANT IN THE FOREGROUND."

Falls with Farini, another acrobat who imitated many of his acts. Among the many who witnessed these performances was the Prince of Wales (later King Edward VII), who was photographed by Babbitt in front of the American Falls on September 17, 1860.

Concurrently the London Stereoscopic Company published a series of twelve stereographs photographed by William England in 1859 which replicated, in large part, the popular views taken from the same vantage points at Niagara as those earlier prints published by the Langenheim Brothers. One notable exception is England's close-up view of the Centre Falls with the American Falls in the background. This view is a departure from the usual documentary scenes taken from a distance. (See figure 5).

With increased demand for stereographs, and improvement and availability of equipment, literally dozens of professional photographers came to Niagara Falls in the 1860's. Some stayed and set up shop. One who stayed was Samuel Mason, who entered into partnership with Babbitt. Mason continued Babbitt's portrait work, taking over his sterographic pavillion next to the edge of the American Falls. Figure 6 shows a pair of stereo prints of Mason's gallery near the American Falls.

The best known photographer on the Canadian side of the river during the 1860's was the notorious Saul Davis, the proprietor of the Table Rock House. As Mason's counterpart on the Canadian side, he took portraits of people standing in front of

Fig. 5. The London Stereoscopic Company No. 90 — "American Fall, Niagara, — Winter Scene."

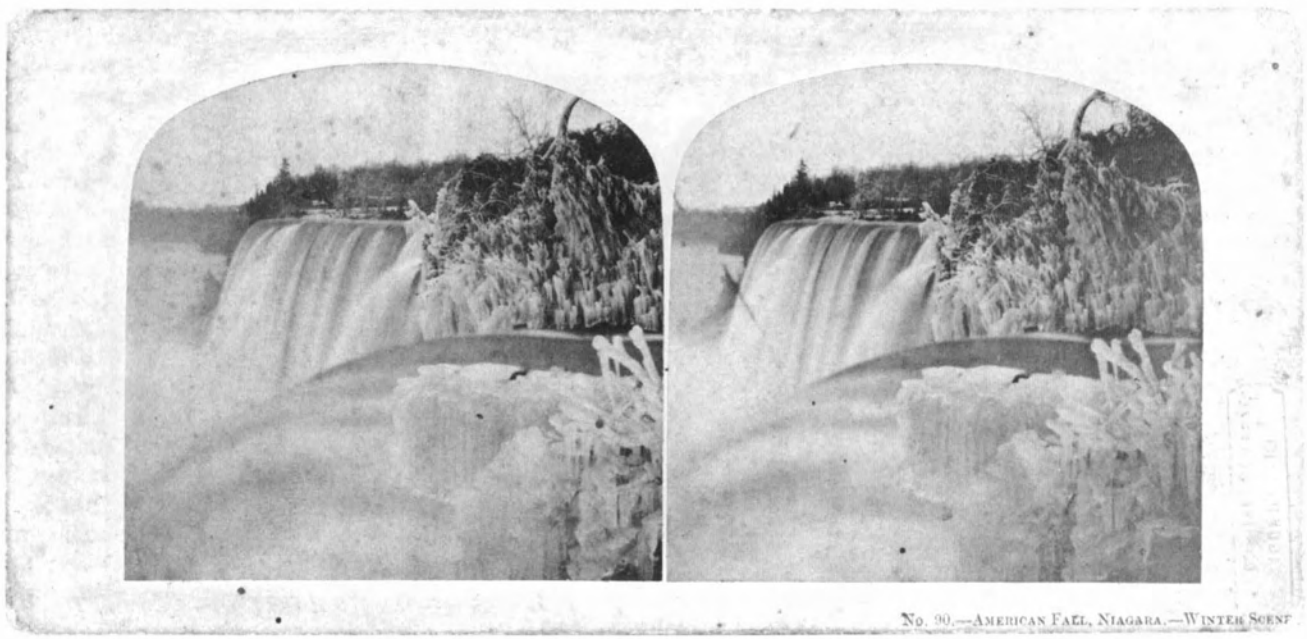


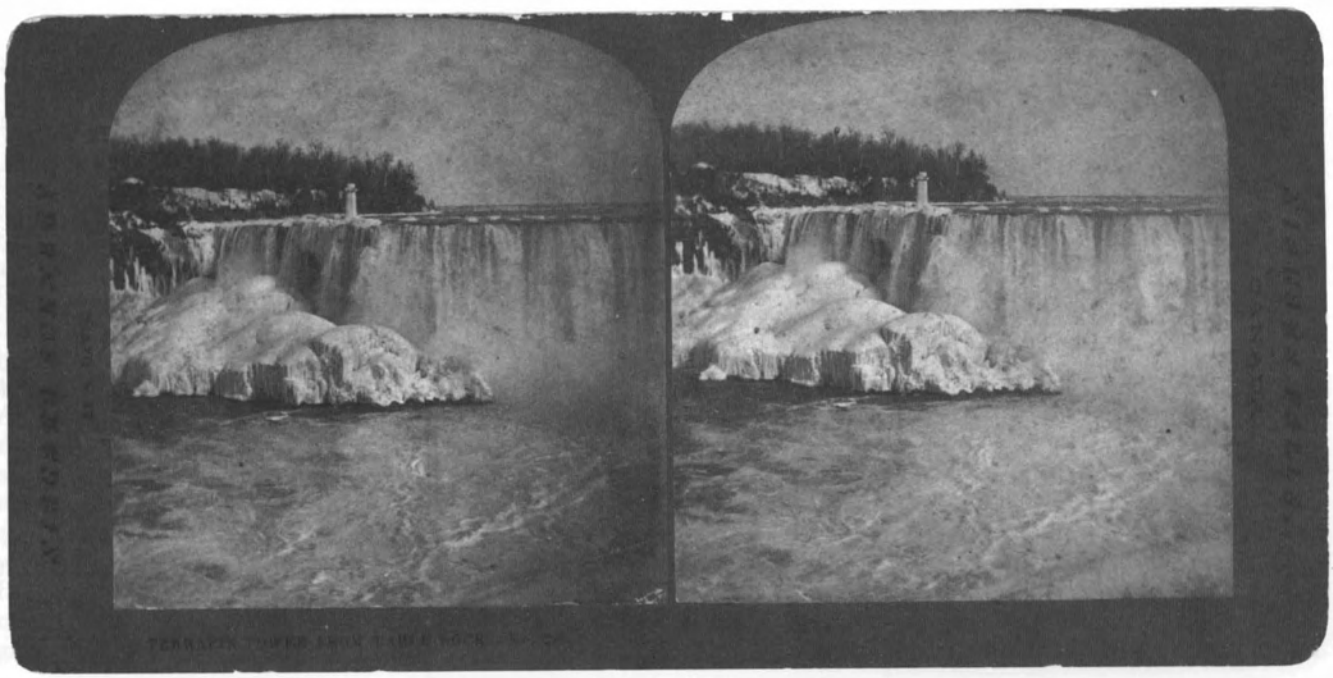
Fig. 6. An unmounted pair showing Samuel Mason's gallery near the American Falls between Prospect Park and Goat Island Bridge, 1867.

Horseshoe Falls. After quoting a reasonable price for his service, to which the customer agreed, he would take the picture. Returning later to his shop to pick up their portraits, customers were confronted with demands for a price of up to nine times higher than the original quote. If visitors refused to pay this exhorbitantly inflated amount, they were not allowed to depart empty-handed, but instead were "insulted, assaulted, and quite frequently knocked down, dragged out and otherwise maltreated." A stereoview of Horseshoe Falls taken by Davis from near his store is shown in figure 7.

Another form of exploitation for financial gain was demonstrated by the activity of E. Anthony, whose monetary earnings came, not from huckstering his own work, but from the sale of others' creations. Having established a reputation as a supplier of stereoviews of Niagara Falls, this New York firm seized the chance for profit from the distribution of large numbers of these views without attributing authorship. In 1862, a catalogue describing five hundred and eighty stereographs of Niagara Falls was published by Anthony, offering mostly documentary stereoviews by anonymous photographers, which were generally not of superior quality.

The general atmosphere in the area adjacent to the Falls on both the American and Canadian sides of the Niagara River had, during this period, acquired somewhat the honky-tonk aura of a carnival. Visitors from both the United States and abroad expressed their reactions and opinions, often in print if they were famous personages. Sir William Butler described the scene in the

Fig. 7. Saul Davis No. 228, "TERRAPIN TOWER FROM TABLE ROCK."



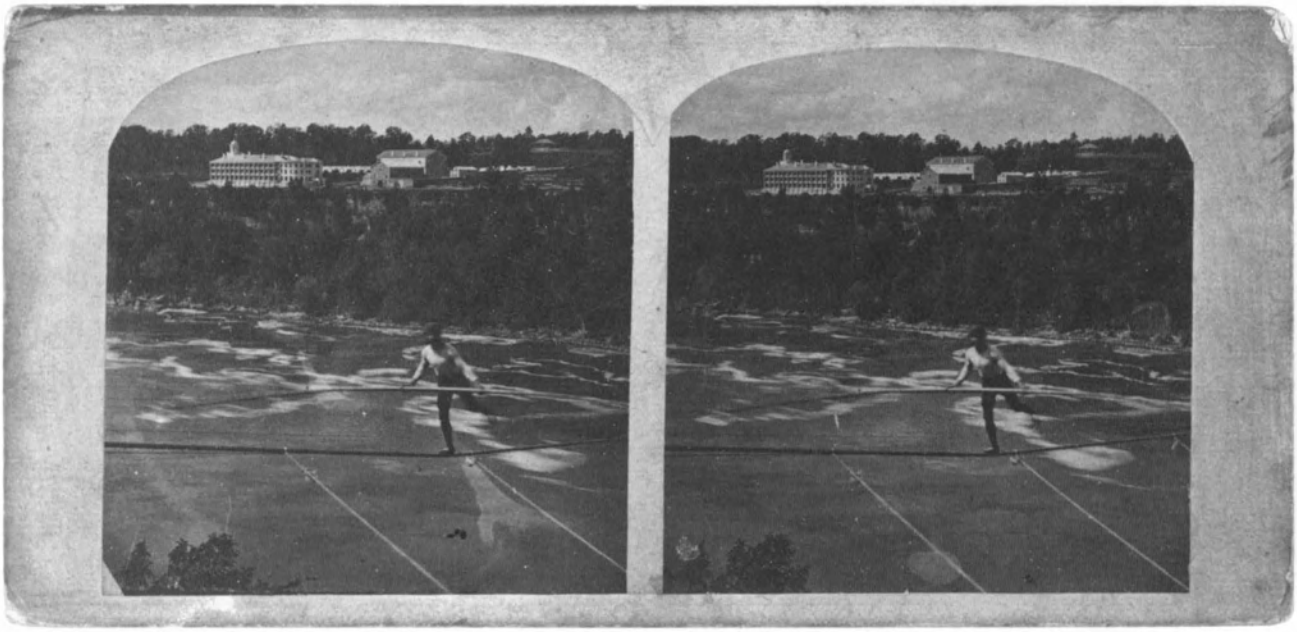


Fig. 8. An unknown photographer's view of Bellini on a tightrope above the Niagara River.

autumn of 1862:

> *...the Niagara season was at its height; the monster hotels were ringing with song, music, and dance; tourists were doing the falls, and the touts were doing the tourists...a comical pageant of itinerant philosophers and honeymooners behaving in a demonstrative manner characteristic of such people in the New World, ...mercenary behavior of 'camera-obscura men' and guides who deserved to be sent over the falls...a place to be instinctively shunned.*

In 1871, Henry James described the scene vividly, but with a greater measure of equanimity:

> *...the importunities one suffers here, mid the central din of the cataract, from hackmen and photographers and venders of gimcracks, are simply hideous and infamous. The road is lined with little drinking-shops and warehouses, and from these retreats their occupants dart forth upon the hapless traveler with their competitive attractions. You purchase release at last by the fury of your indifference, and stand there gazing your fill at the most beautiful object in the world.*

Since Niagara Falls was the favored subject of landscape photography, national photography conventions were held in nearby Buffalo. At the close of these conventions, excursions to Niagara Falls were arranged. This created an added attraction for the convention attendees. These conventions, held in 1873, 1885, and 1891 were considered to be the best of the century for the quality of work displayed, for the photographic instructions given and for the entertainment provided in nearby Niagara Falls.

The year 1873 was significant because of the development of panochromatic photographic emulsion which translated colors into accurate black and white tones. Following that convention, many in attendance traveled to Niagara Falls to summer there, and to photograph the tightrope performance of Henry Bellini. Figure 8 is a stereoview of Bellini running on the tightrope over the Niagara River, taken by an unknown photographer.

The increasing encroachment of uncontrolled commercialism and the building of industrial plants that relied on water power had ravaged the area around the Falls. A state commission was formed in 1879 to look into the possibility of creating a state park at Niagara in order to restore and preserve its natural beauty. This effort was strongly supported by Grover Cleveland, a lawyer from Buffalo at that time, whose elective offices escalated from Mayor of Buffalo to Governor of New York State, and then to President of the United States, in three short years. As Governor, he appointed a Board of Commissioners in 1883 to designate the appropriate land to be acquired by the State, and to take the necessary action to ascertain its value. The bill for the monies needed for the transaction remained in limbo while he was running for the Presidency.

It was common knowledge that Grover Cleveland supported the bill for a state park at Niagara, and thus a vote for him was a vote for Niagara. On July 31, 1884, two weeks after the Democratic Party nominated Cleveland for President, the Photographers' Association of America decided to hold the 1885 summer convention in Buffalo, Cleveland's home town. Making a state park at Niagara was a compliment to American photogaphers, as Niagara and landscape photography were so closely associated.

As Cleveland had supported the state park at Niagara, photographers in turn supported him. Grover Cleveland was elected the 22nd President of the United States in the fall of 1884. In the spring of 1885, the bill was finally implemented, and Niagara became a state park that summer. On the last day of the 1885 Convention of the Photographers' Association of America in Buffalo, an excursion to Niagara Falls was arranged to attend the opening day ceremonies of the new Niagara Falls State Park. Seventy thousand people attended the ceremony.

In 1888, Kodak Company made photography readily available to the amateur public with the introduction of a camera that was easy to use. With this camera, one would take one hundred pictures and send the

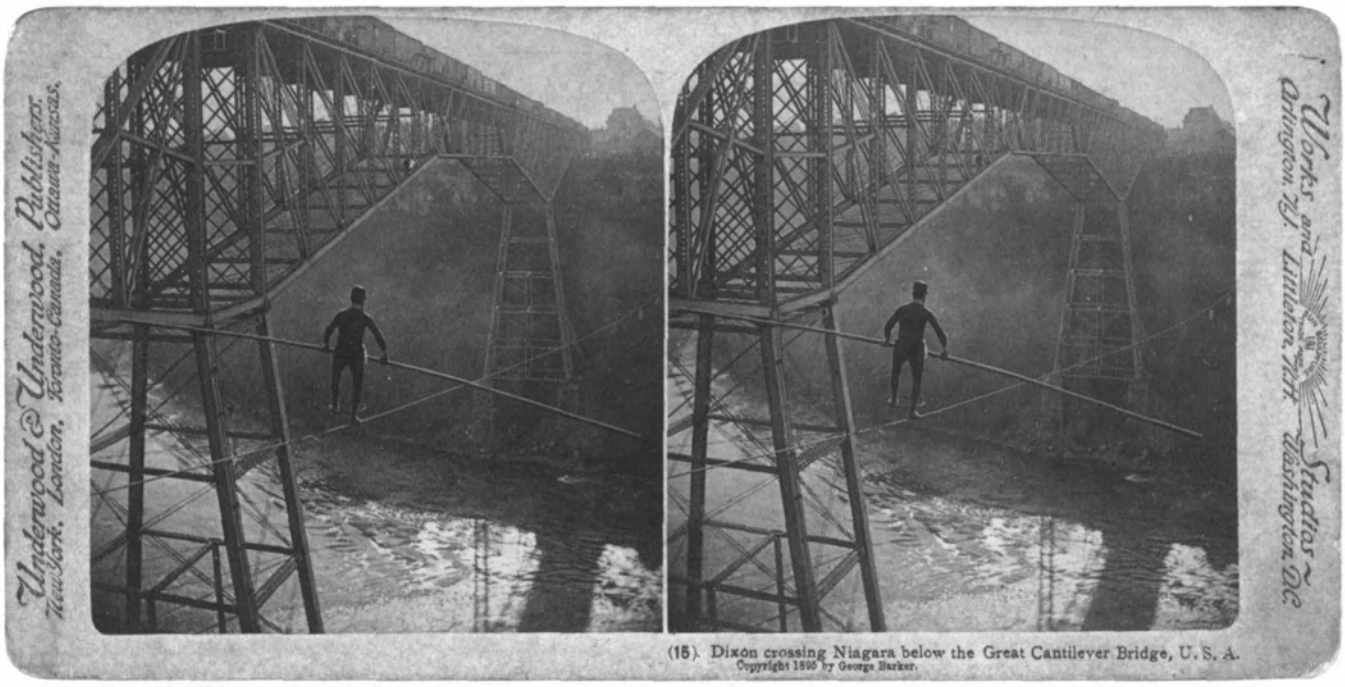

Underwood & Underwood, Publishers
New York, London, Toronto-Canada, Ottawa-Kansas.
Works and Studios
Arlington, N.J. Littleton, N.H. Washington, D.C.
(15). Dixon crossing Niagara below the Great Cantilever Bridge, U. S. A.
Copyright 1890 by George Barker.

Fig. 9. Underwood & Underwood, "Dixon crossing Niagara below the great Cantilever Bridge, U.S.A." A George Barker view of Dixon crossing with his feet in a hoop. His performances were in September of 1890 and July of 1891. (See Stereo World *Nov./Dec 1979.) (John Saddy Collection.)*

camera to Kodak where the pictures would be developed and printed. Kodak would then return the camera, reloaded with new film, together with the developed pictures. For people who had other types of cameras, or for those who chose to develop their own film, darkrooms were provided in a local hotel to cater to these visitors to Niagara Falls.

However, as a leading photography magazine pointed out, one might have to wait months for the ideal weather conditions, and resident photographers had the best chance to capture the Falls at its most picturesque. Therefore, since stereographs and photographs were so readily available and inexpensive, perhaps one would be better off to purchase these views and devote time to enjoying the beauty of the landscape.

In the summer of 1890, Samuel J. Dixon, the famous photographer turned daredevil, performed a tightrope walk across the Niagara Rapids and announced his intention to perform again the following summer. (See figure 9) This added feature helped to assure a sizeable attendance at the national convention of 1891. At the close of that convention, an excursion to Niagara Falls was arranged to witness Dixon's performance. This was an especially auspicious occasion for photographers to witness, and perhaps to capture on film, because Dixon was one of their own. In addition to being a distinguished photographer, he had been President of the Photographers' Association of Canada during the previous year, and had served as Vice-President of the Photographers' Association of America in 1881.

Stereophotography remained popular and continued to be distributed widely. The leading distribution company, Underwood and Underwood, published a book in 1900 entitled *Niagara Falls Through the Stereoscope* which included eighteen documentary stereographs of the Falls and surrounding area. Two maps were also included which highlighted specific vantage points from which the reader could imagine viewing the scenes. This project was experienced by many as a substitute for actual travel, and provided educational enlightenment as well as amusement. The idea for the book was imaginative, but the included stereographs were not.

The Photographers' Association of America Convention of 1906 which was held in Niagara Falls, marked the beginning of a new era in photography. The purpose of the convention was two-fold; to develop strategy for gaining acceptance of photography as a fine art in America, and to promote photography as a business enterprise. More than anywhere else in America, Niagara photographers had been successful in achieving both of these goals for more than fifty years.

Among the photographers who flocked to Niagara Falls during the 1860's and 1870's there were undoubtedly many who could be classified as hacks, content to earn part of their living by photographing, from safe and secure vantage points, scenes that were becoming somewhat redundant and trite. Their major goal was to make money from the prints they sold, whether these were good, bad or indifferent. However, there were also those with aesthetic curiosity and creativity, perfectionists who were willing to take physical risks in order to achieve artistic effects. Indeed, one photographer, Alphonso Watson, fell to his death in July of 1876 while photographing the Falls.

Three men who moved to Niagara Falls during the 1860's would become the most accomplished and best known photographers of Niagara, famous throughout America and Europe. The stereographic work of Charles Bierstadt, George Barker and George E. Curtis captured the essence of the Falls through the use of detailed studies, choices in composition, variety, and framing. As residents, they photographed the Falls in all seasons, doing much of their work

in winter when the Falls and surrounding areas are perhaps most picturesque.

Bierstadt, Barker and Curtis photographed Niagara Falls extensively from the 1860's to the turn of the century. They were men of vision, whose approach to photography culminated in acknowledged artistic expression, as evidenced by the many awards they received for their work. They all made their livelihoods through their stereographs, primarily of Niagara Falls, which were sold at their local galleries and also distributed nationally by photographic distribution companies.

As acknowledged masters of stereoscopic photography, who were associated with Niagara Falls, a magnet for painters and photographers of the day, Charles Bierstadt, George Barker and George E. Curtis were national celebrities one hundred years ago. They pioneered in using stereophotography as an art form, inspired by landscape painters. In turn, their stereoviews were often copied by painters in an attempt to capture details and the illusion of three-dimension on canvas.

Their contributions have been largely ignored by art historians and are generally unknown today. There is no source or body of information that supplies more than a brief mention about any of these three camera-artists. Of necessity, information had to be culled from photographic magazines and local newspapers, starting with the 1860's.

Charles Bierstadt

On October 28, 1897, *The Niagara Falls Gazette* published an interesting, and somewhat startling lead story, "After 31 years separation, aged wife (71) wants an allowance for support from her husband (78) . . . who, she declares, is now worth $50,000." The ghost of Charles Bierstadt's past had appeared to haunt him! It had not been public knowledge that Bierstadt had a living wife, although the fact that he had once been married was assumed, since his son had come with him to Niagara Falls when he settled there permanently in 1867. One can imagine with what avid interest the townspeople read the somewhat sordid details of this unhappy situation.

Charles Bierstadt had married Lucy C. — on October 9, 1848, when he was twenty-nine and she was twenty-two years old. They lived together for eighteen years, and had a son and a daughter. What had gone wrong? We have few documented details, but we can infer some of the factors that may have led to the collapse of the marriage.

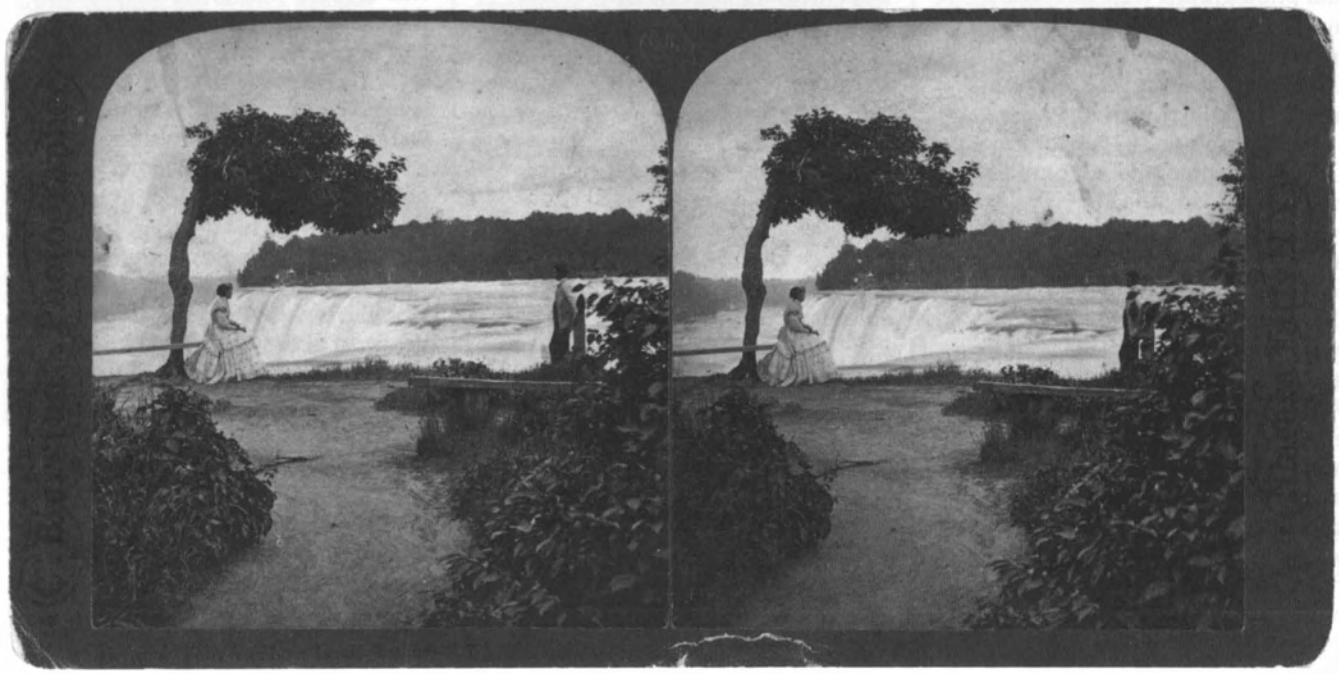
Charles Bierstadt was the eldest child of German immigrant parents, who had left their native land because Christina Bierstadt, the mother of the family, did not want to bring up her children in the war-like atmosphere that was the aftermath of the Napoleonic Wars in Europe. The father, Henry, had served in the army for ten years, and had left the service when their home city of Dusseldorf was transferred to Prussia in 1815. No doubt he also was glad to leave the unsettled conditions at home to start a new life in America.

When the Bierstadts arrived in New Bedford, Massachusetts on February 22, 1832, Charles was twelve years old, and had four younger siblings, two brothers and two sisters. Strong family loyalty and enduring supportive relationships were to be outstanding characteristics of all the Bierstadts throughout their lives.

There is sparse information about Charles Bierstadt's early life. We do know that New Bedford was an economically thriving town, with whaling as its major industry. Henry Bierstadt was a cooper, and found ready business for his barrels, which were used for shipping whale oil to Europe. Charles and his next younger brother, Edward, went into a woodworking business, either in a joint venture with their father, or perhaps later on their own.

Meanwhile, the youngest child, Albert, had developed talent as an artist, encouraged by his mother whose cousin, Johann Peter Hasenclever, was a well known 'shining artist light' in Dusseldorf, the "mecca for most young American art students wanting to study in Europe." Accordingly, in

Fig. 10. Bierstadt No. 41, "Amer. Falls from Luna Island, Niagara, N.Y."



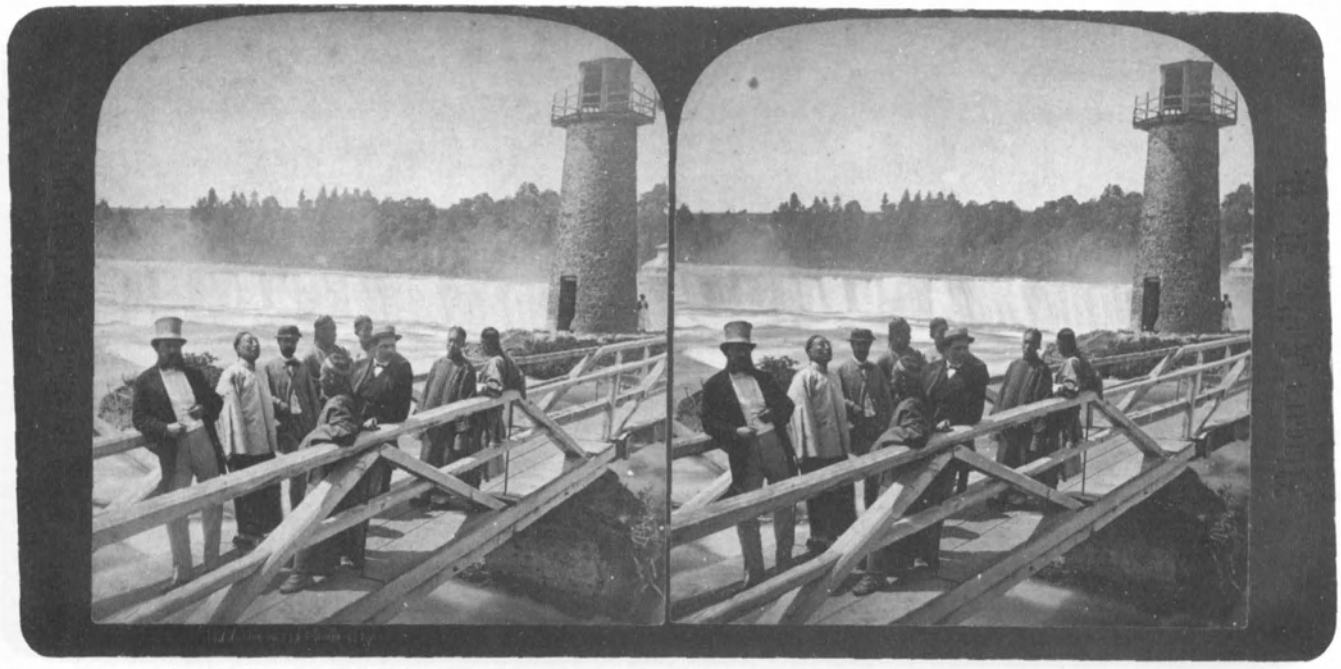


Fig. 11. Bierstadt No. 677, "Chinese Embassy."

1853, Albert left for Germany with the intention of studying with this relative. Unfortunately, Hasenclever died shortly before Albert arrived, but he stayed in Europe, on his own, for four years, traveling widely, working prodigious hours to develop his talent, and cultivating strong and lasting friendships with the rising generation of young artists. Albert's subsequent career as an acknowledged master of landscape painting was to have a profound effect on the lives of his brothers Charles and Edward.

Photography was a relatively new means of visual representation, and stereophotography was a very recent technological marvel that quickly became quite the rage in Europe while Albert Bierstadt was there. Little wonder then, that Albert tried out this new invention during a trip to paint and sketch the landscape of the far west in 1859, shortly after his return to the States. Public interest in this great untamed frontier had been excited by news of the California gold rush. Also, political and economic conditions were deteriorating in the east, and many people were making plans for the long overland trek across the country to make a new beginning in the wide open, and available land in the west.

When Albert returned to New Bedford at the end of the summer of 1859, he discovered that the woodworking business of his brothers had recently been gutted by fire. Despite his eagerness to advance his own career by moving to New York City, where many American painters were located, Albert assessed his brothers' plight and persuaded them that photography promised a more interesting and lucrative business for their future, and stated that he would teach them what he knew. Accordingly, the three men took off for the scenic beauties of New Hampshire's White Mountains, where Albert shared his knowledge of some of the finer points connected with the composition of dramatic landscape scenes.

At the age of forty, Charles Bierstadt started a new career that was to offer him fame, fortune and travel to exotic places, but may well have cost him married happiness. Charles took to photography with meticulous, painstaking passion. He photographed extensively in New Bedford and the surrounding area, he traveled to New York and Boston on photographic excursions, and once again in the summer of 1860 he went with his two brothers to the White Mountains to hone his skill as a landscape photographer. In the fall of 1860, Charles and Edward published their first catalogue of scenic stereoviews, the vast majority of which had been photographed by Charles.

We know that Edward and Albert photographed scenes of the aftermath of Civil War battles in 1861, but Edward soon gave up taking pictures and became celebrated as a printer, publisher and distributor of photographs. Albert's interest in photography had at best, been peripheral to painting. Charles, however, had been completely captivated by his new profession and continued his voluminous output of stereoviews.

When did Charles' troubles with Lucy start? He had first traveled to Niagara Falls in 1866, a location that competed with the Rocky Mountains and Yosemite Valley for the Public's interest, and he was anxious to obtain stereoviews of the Falls. Was it on his return from that trip that Bierstadt discovered Lucy in a "questionable place of entertainment?" He gave her a second chance to behave as a proper respectable wife "for the sake of the children's good name," but shortly afterward he found that she "visited Rhode Island watering resorts with strange men and committed such grave acts of infidelity that he could no longer live with her."

Charles Bierstadt was an exceedingly close-mouthed and private man in later years, who seemingly had warm relationships only with his siblings. Was this the result of tortured feelings of betrayal, or had he been a dour, preoccupied, and often absent husband against whom Lucy had finally rebelled and sought revenge? We know only that he obtained legal separation from her in 1867, took his son with him, and established permanent residence in Niagara Falls. There was nothing to

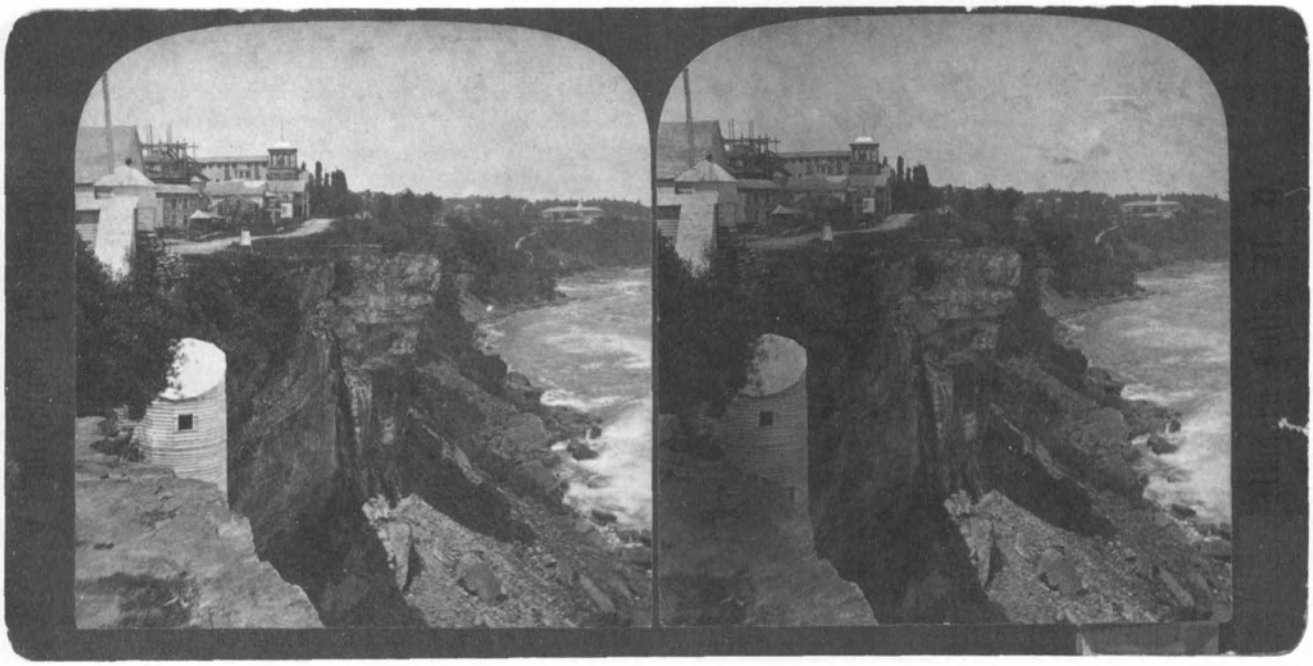


Fig. 12. Bierstadt No. 43, "Table Rock from above Niagara, N.Y."

keep him in New Bedford; his mother had died in 1864, his father died in 1866, and both brothers now lived in New York City. He neither saw nor heard from Lucy for the next thirty years.

Due to his increasing skill as a landscape photographer, his prodigious output of stereoviews, and the extensive publicity and sale of his work, which had been a major occupation of his brother Edward, Bierstadt settled in Niagara Falls with a reputation as a recognized landscape photographer. He purchased the property of Platt Babbitt, which was in the most advantageous location for business in town, and quickly set about building up a large stock of stereoviews for sale to tourists.

A portion of Charles Bierstadt's work in Niagara Falls was devoted to photographing newlyweds at America's most notable honeymoon spot. One example (figure 10) is a formally posed picture of a young couple facing each other, strategically positioned so that their figures frame the American Falls in the background. The bride, in her crinoline skirt, is standing under a distorted tree whose shape suggests a sheltering canopy, and her husband leans casually against a tall stump or post a few yards distant, and gazes at her adoringly. Symbolically, despite the grandeur of the scene around them, they have eyes only for each other.

Many portraits of that period show persons in artificially stiff, unnatural poses because of the long exposure time needed for photographs, and the novelty of the relatively new technology for those who were being photographed. However, improvements in the process were rapidly being developed, and the photographers in Niagara Falls kept themselves fully informed about the latest technological advances that would benefit their craft. By 1868, photographers were beginning to advertise "instantaneous" portraits, by which they probably meant an exposure time of about one-half second. This allowed for considerably more natural poses.

In August, 1868, members of the Chinese Embassy visited Niagara Falls and were photographed by Charles Bierstadt in attitudes of posture that give the impression of spontaneity. (See figure 11) The person standing next to the Terrapin Tower is not a member of the group, but is included to give perspective.

Although commissioned portraits were the "bread and butter" of his business, Charles Bierstadt aspired to win plaudits for landscape studies, as did the majority of his colleagues. One of the most popular spots for tourists to get a clear and unobstructed view of the Falls was from Table Rock. (See figure 12) Shops for the tourist trade can be seen along the top of the cliff, with Table Rock projecting out over the Niagara River Gorge from the near end of the road. This view demonstrates the importance of the foreground in delineating distance and differences in height. The feeling of deep space is enhanced by the sharply defined foreground objects, e.g. the rough surface of the rock ledge, the steep cliffs accentuated by dark shadows, boulders on the slope toward the river. These details also illustrate some of the difficulties faced by photographers who were intent on creating a particular view despite the hazardous terrain and their cumbersome equipment. When viewed through a stereoscope, there is a strong impression that one is leaning out over the edge of the precipice. So vivid is the unprotected edge and the possibility of a sheer fall from a great height, this view might induce a twinge of vertigo in a fearful viewer. One has the illusion of being inside the scene, not merely looking at it.

In "American Falls and Rainbow from Canadian Side" (See figure 13) Bierstadt presents a variation in his portrayal of a perilous position from which to view the scene. Here, one is poised over the Rapids of the upper Niagara River just as the torrent is about to plunge over the brink to become the Horseshoe Falls. The curve of the rainbow points to, and frames the American Falls in the background. A good illustration of his eye for composition is realized in the graceful curved lines formed by the whitecaps which flow toward the

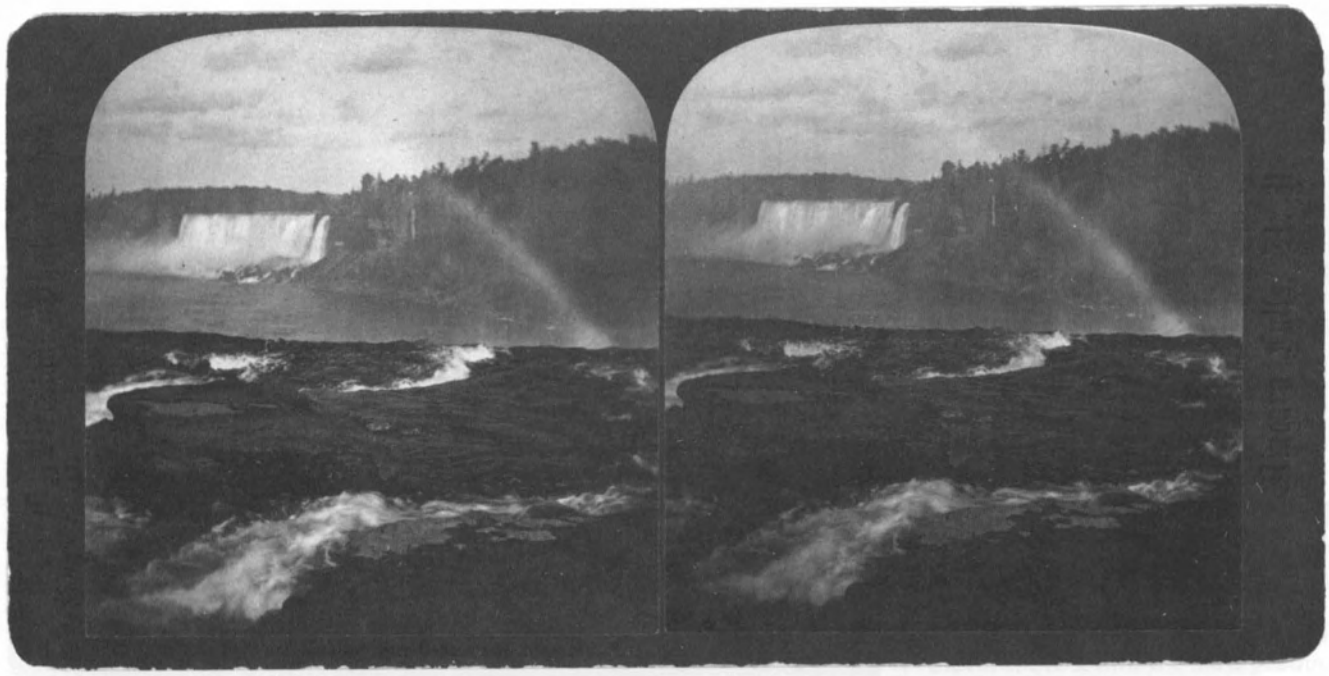


Fig. 13. Bierstadt, No. 215, "American Falls and Rainbow, from Canada side, Niagara, C.W."

lip of the Falls, reiterating the curved line of the rainbow. In the background, the white water and spray of the American Falls provide contrast, weight and balance in the image.

Story-telling interest is an integral part of "Ferry Boat Crossing." (See figure 14) The rower strains at the oars while pulling against the murky flow of the river under a threatening sky. This is no peaceful boating scene on a summer day. Dramatic cloud formations loom overhead and dominate the scene, more spectacular in this view than the American Falls, which are starkly framed by the densely wooded Goat Island in the background, and protectively embraced by Prospect Point at the near end. Bierstadt has captured elements in motion; intersecting planes create an atmosphere of tension, falling water is preserved in minute detail as it falls, and black silhouettes, highlighted by stark white, intensify the forcefully theatrical effect.

Bierstadt's panoramic view of the whole of the Horseshoe Falls (See figure 15) is an exquisite example of his imagination and ability to create balance and harmony in his compositions. The sky reflected in the calm water of the foreground imparts a feeling of serenity which is a stark contrast with the violent action of the Falls in the distance. Once again, the exact location of the viewer is apparent from close-up details of a single rock in the foreground. A collection of rocks just a little further beyond, not only anchors the view, but

Fig. 14. Bierstadt No. 62, "Ferry-Boats Crossing, Niagara, N.Y."

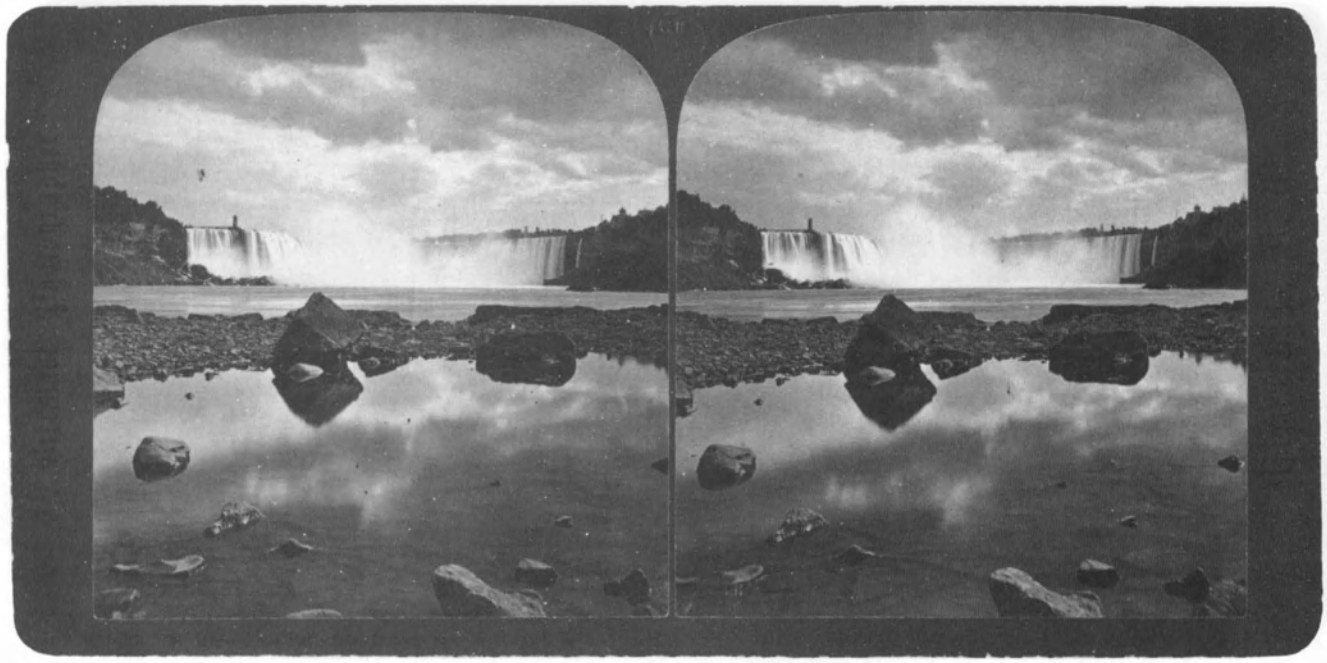
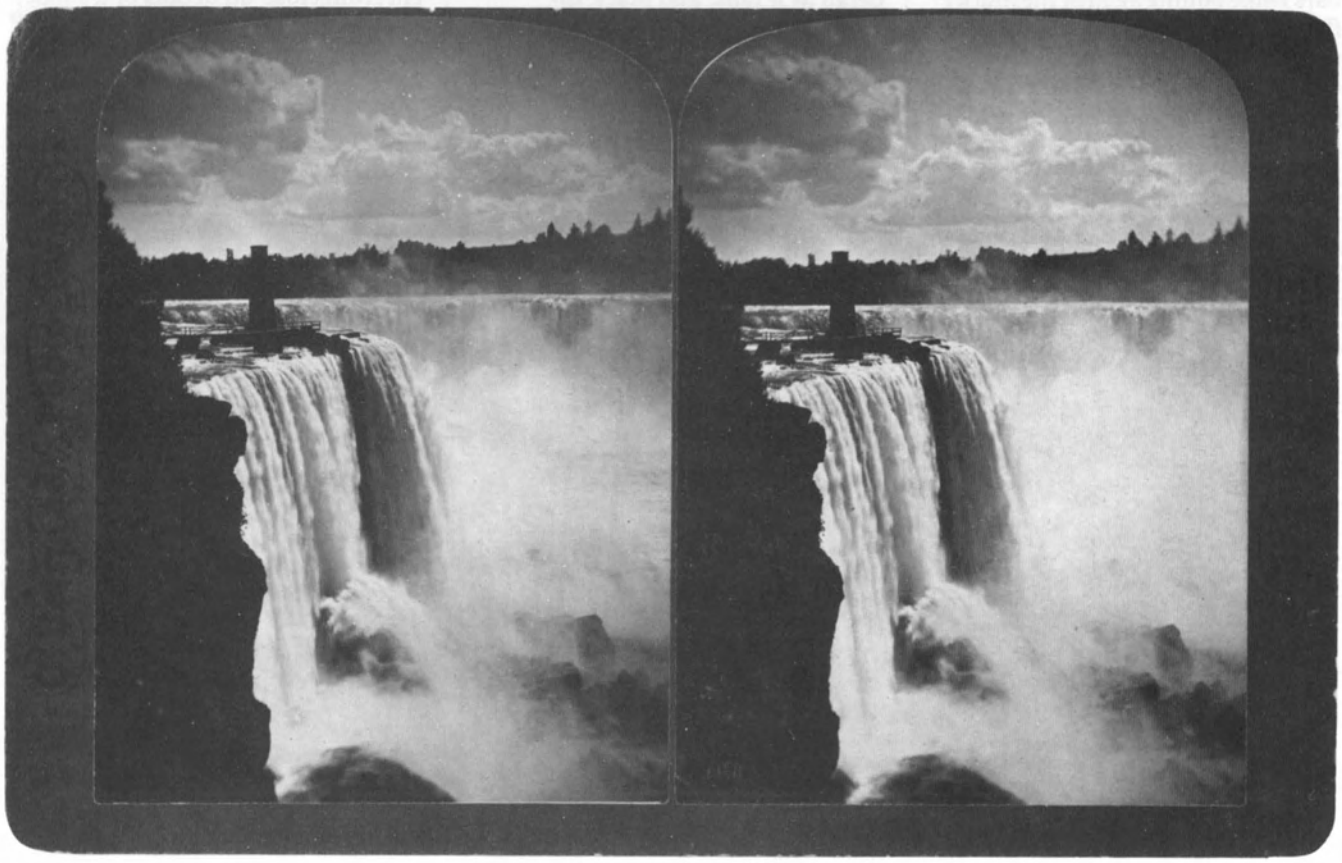


Fig. 15. Bierstadt No. 708, "Horse-Shoe Falls from Canada side, Niagara, C.W.

divides the scene, creating the effect of repeating images and leading the eyes into the distance and the explosive drama of the Falls. A mirror image of clouds and shore line is often used as foreground focal interest in the landscape paintings of Albert Bierstadt. Here is a clear example of his painterly vision influencing the photographic style of his brother Charles.

Support and guidance was by no means one-sided between the Bierstadt brothers. It is known that Albert often used stereographs as models for his paintings, and no doubt many of the early ones were produced by Charles. A comparison of Albert's painting (figure 16) with the stereograph taken by Charles (figure 17) is an interesting study. The choice of vertical framing gives the Falls an accentuated powerful and monumental appearance. Sharp con-

Fig. 17. Bierstadt No. 19, "Terrapin Tower & Profile Rock, Niagara, N.Y."



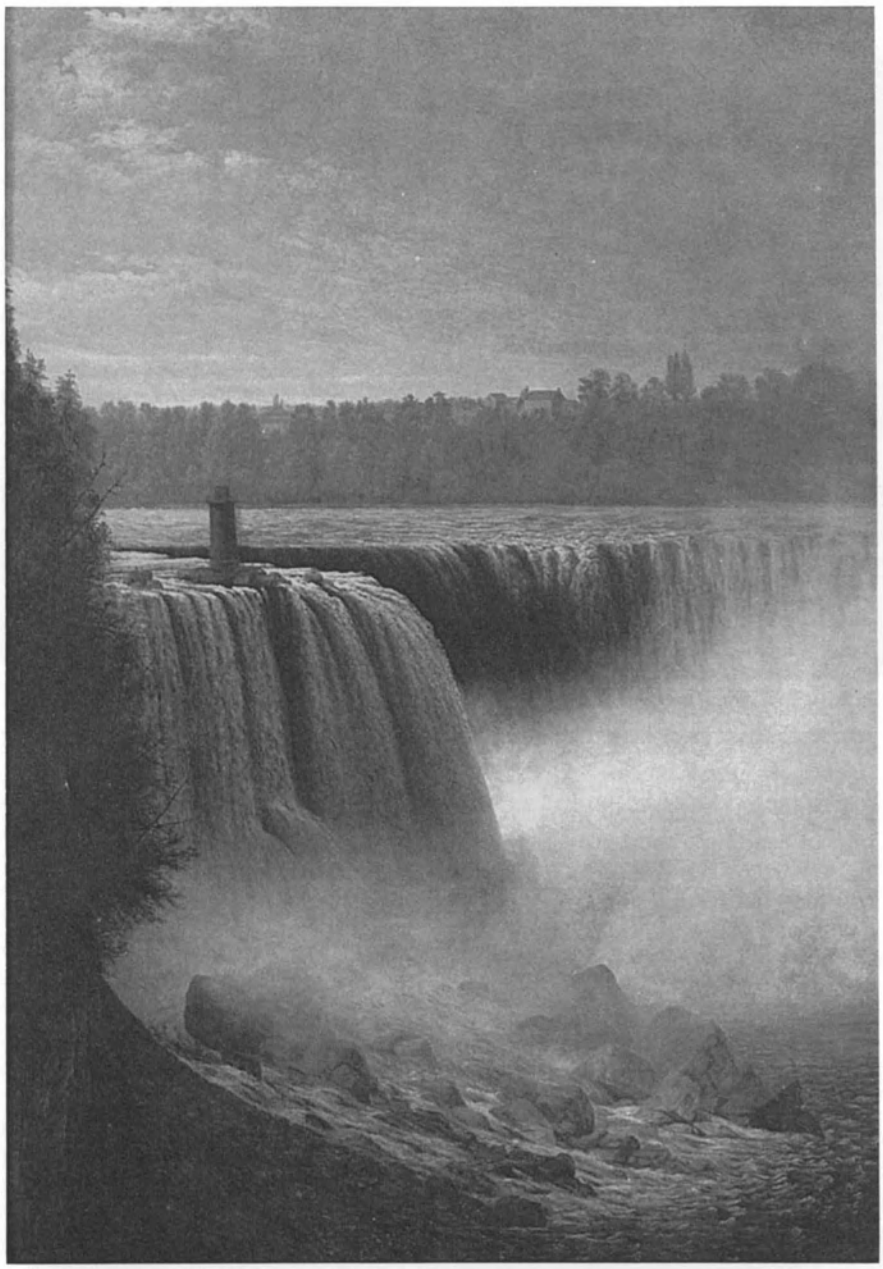


Fig. 16. Painting of Niagara Falls by Albert Bierstadt.

trasts between light and dark tonalities add drama to the scene as the torrent of water drops from the lip of the precipice. There is a striking dissimilarity between the solidity of the rocks at the base of the Falls and the ephemeral quality of the mist rising around them. A picturesque element is provided by Terrapin Tower, which also serves to accentuate distance and relative size. These views date from 1869, when Albert made his first trip to Niagara Falls to visit his brother.

From what is known about the fierce loyalty and professional interweaving of the lives of the Bierstadt brothers, one can conjecture about the nature of this visit. Albert had just spent two years in Europe on an extended honeymoon, and his first stop on his return to America was a stay of several weeks in Niagara Falls. Was he worried about his brother Charles, whose marriage had broken up so painfully two years before, just as his own life had taken on the rosy glow of love and exciting adventure? The extensive listing of Charles' stereoviews of Niagara Falls in the latest catalogue showed clearly how he had been spending his time.

It is apparent that the two brothers collaborated in the composition of Albert's painting, and it may be assumed that they also spent quiet companionable time together. Perhaps this show of concern and support had a healing quality. At the end of that summer, Charles was persuaded to spend six weeks in the White Mountains with Albert and his wife Rosalie, together with other relatives and friends. Maybe this interlude gave him a new lease on life, or at least an urge to change pace, because the following spring Charles Bierstadt took an extended trip across the country.

Edward Bierstadt also was the recipient of largesse at this time. Albert had brought back from Europe the patent for a new process for printing photographs which he gave to Edward. Recently developed by Josef Albert, the court photographer to the Bavarian Court, the "Albert-type" process, a surface to surface printing process, made possible for the first time the mass production of inexpensive copies, and was to become a mainstay of Edward's publishing business and the vastly expanded distribution of stereoviews photographed by his brother Charles.

It was a notable characteristic of Albert Bierstadt's activities and travels that he managed to come in contact with a large number of very prominent people and formed lasting friendships with many powerful individuals, including European royalty, and both foreign and domestic government officials. Over the years he introduced many of these friends to Charles, who photographed them when they visited Niagara Falls. With his connections he also was able to expedite Charles' access to places and people in travels through America and abroad.

The long trip taken by Charles Bierstadt in the spring of 1870 took him to Yosemite, San Francisco, and to Utah, where he met with Brigham Young, an acquaintance of Albert's. Next to Niagara Falls, scenes from the far west, and especially of Yosemite were the second choice for stereophotographers. Charles stopped frequently along the way to photograph the changing landscape, and on his return this large collection of stereographs, along with his Niagara Falls portfolio, was exhibited for him by his brother Edward at the American Institute Exposition in New York City. His stereographs comprised the "largest and best" collection at the show and "were stereographed to

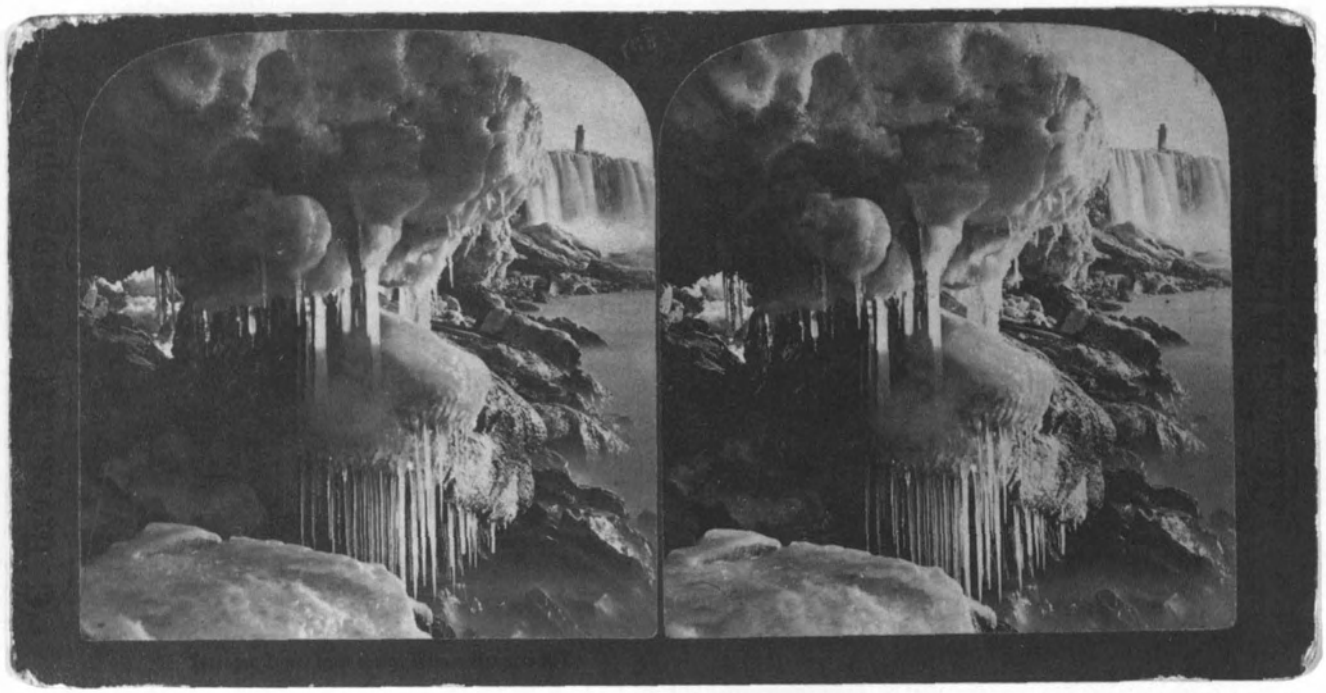


Fig. 18. Bierstadt No. 588, "Terrapin Tower from below, Winter Niagara, N.Y."

perfection." For this display he was awarded a gold medal. Honors were not new to Bierstadt. He had been awarded first medal in competition at the previous year's Exposition in New York, and had been given diplomas for excellence at shows which were mounted at Faneuil Hall and Quincy Hall in Boston.

On Christmas Day of 1871, Bierstadt photographed Grand Duke Alexis of Russia in a formal portrait with the Horseshoe Falls in the background. During the following years he was to meet and photograph many other notables who were his brother Albert's friends, including a daughter of Queen Victoria, Princess Louise, who became "Vice Queen of Canada." The public have always loved pictures of royalty, and these photographs probably sold very well.

In 1873, Charles Bierstadt traveled for five months through Europe and the Holy Land. While he was abroad he submitted views of Niagara Falls at the Vienna Exposition, where he won the highest honor, the Vienna Medal of Merit. Returning to the United States at the end of August he entered competition at the American Institute Exposition in New York City, and once again he received highest honors for his views of Palestine, Egypt, Tripoli and Africa, attesting to the success of his recent trip.

Bierstadt constantly sought methods to improve the quality of his work. During the winter of 1874-75, he experimented with the new dry plate process, which had the advantage of needing a shorter exposure time than the wet plate process in common usage, and also could be developed at leisure, thus enabling the photographer to be more efficient in taking pictures. Because of the short exposure time needed, it became possible to photograph the interior of mines and caverns. In the May, 1875 edition of the *Philadelphia Photographer* magazine it is noted that Bierstadt had submitted a collection of stereographs "made on dry plates during the past winter, which showed some wonderful effects of frost and ice."

An excellent illustration of Bierstadt's handling of the fantastic ice sculpture wrought by the forces of nature in the wintertime at Niagara Falls is his stereoview "Below the Tower." (See figure 18) The luminous delicacy of slender icicles highlights the weighty substance of the ice-draped rocks from which they hang. This view points up Bierstadt's artistic use of contrasts, such as: the juxtaposition of stilleto-sharp icicles and billowy rounded forms of ice-coated rocks, the rugged rocky shore congealed in the glass-smooth frozen water, the foaming action of the distant Falls surmounted by the stolid form of the tower, and the gradations of tonal quality from the transparency of the icicles at the far end of the tunnel to the dark, almost black shadow against the overhanging rock. Just as painters employ chiaroscuro technique to produce the effect of modeling, Bierstadt, with his camera lens, captures gradations of light and dark shading that emphasize form and substance in his pictures. "Interior of the Cave of the Winds" (figure 19) displays ice sculpture in a different guise. Icicles framing the entrance to the cave effectively echo the repeated forms visible along the passage to the recesses of the cave. Although the brilliance of refracted light from mist, water droplets, and icicles flashes into the interior at intervals, there is a somewhat ponderous and mysterious atmosphere conveyed. These are not fragile transparent icicles, but rather, in the foreground they resemble ancient broken columns, suspended from a still solid roof, or lying like the fallen rubble of an ancient Greek temple. The broken forms, in turn, provide a broken frame for the view.

Many spectacular views of Niagara Falls and the surrounding area were captured by photographers who were out in all kinds of weather, all seasons of the year, and at all times of day and night to increase their photography collections. New and unusual views were constantly needed for entrance into the frequent photographic exhibitions and/or competitions, and for sale to an eager

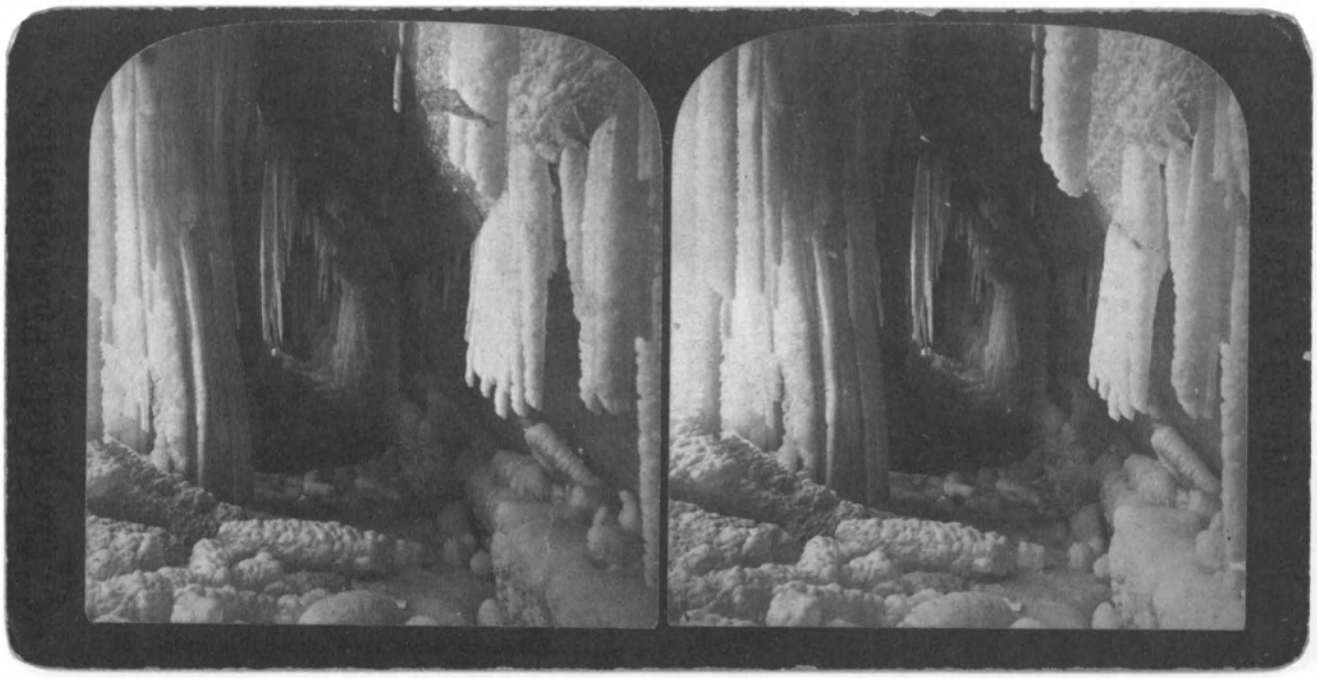


Fig. 19. Bierstadt No. 333, "Interior of Cave of the Winds, Winter Niagara, N.Y."

public, who had discovered that stereoviews were the next best thing to expensive travel. To capitalize in a novel way on this ready market, Charles and Edward Bierstadt together published a book in the fall of 1875 titled *Gems of American Scenery*, consisting of stereoscopic views among the White Mountains. Accompanied by a descriptive text and bound with a stereoscopic viewer, the volumes had been produced by the Albert-type process, the patent for which had been a gift from their brother Albert six years earlier.

Although he was primarily identified as a Niagara Falls photographer, Charles Bierstadt had become perhaps the most cosmopolitan personage among his colleagues in that town. He had traveled extensively, both in America and abroad, and his portfolio included views of exotic places taken during his travels.

During the spring of 1876, he mounted an exhibition of his many new stereoviews in his Niagara Falls studio for the viewing of his fellow townsman. This collection of six hundred views, taken in nearly every part of America, and including a very complete series taken in Egypt and the Holy Land, were taken to Philadelphia to be displayed at the American Centennial Exposition, where he received the highest honor, the Philadelphia Medal of Merit. The *Philadelphia Photographer* magazine reported on the convention, "The extent of Mr. Bierstadt's operation has hardly been equaled by any pho-

Fig. 20. Bierstadt No. 299, "Amer, Falls from Luna Island. Winter Niagara, N.Y." A mislabeled view actually made from Hog Back Point.

Fig. 21. Bierstadt No. 200, "Remains of Table Rock, Niagara, N.Y."

tographer in this country, and his success is shown by the profusion, variety, and excellence of this exhibit."

In 1881, new technology of superior quality glass made it possible to make faster lenses. This, coupled with the new improved rapid dry plate available that same year, enabled Bierstadt to make detailed close-up studies. These new technologies were particularly useful given the rapid motion of his subject, the turbulent waters of the Niagara River and its waterfalls.

The stereoview titled "American Falls from Luna Island" (figure 20) is mislabeled, as sometimes happened when these views were mounted for sale. The vantage point for the viewer actually is Hog Back Point, separated from Luna Island by Centre Falls, with a small edge of the American Falls barely visible beyond the tip of the island. This view demonstrates Bierstadt's eye for detail and the harmony and balance of his compositional style. The clearly focused foreground, with a smooth dark surface of the rock, is echoed in softer focus on Luna Island, where graceful sprays of snow-laden branches stand out against the dark evergreens. The dark rock anchors the scene, and its sharp points toward the white foam of the near cataract and the barely visible American Falls beyond the island.

"Remains of Table Rock" (figure 21) may well have been a significant memento of personal history for those who had, in years past, ventured out onto this promontory. An apparently stable, permanent rock ledge, which was pictured intact (figure 12) at the beginning of this chapter, broke off the face of the cliff with heart-stopping suddenness in 1875. The circumstances were such that it seemed a miracle no one was killed, or even hurt. A party of sightseers, after gazing at the Falls, had left their coach which was parked on Table Rock. While they sought light refreshment from a nearby restaurant, the coachman unhitched his horses and led them to pasture to graze. He had just started to wash travel dust off his coach when he felt a strange sensation, and leaped to solid ground in time to see the rock promontory and the coach crash down into the ravine below.

In 1882, Bierstadt was profiled in a Niagara guide book as "the leading man in the manufacture of (Niagara Falls) views" with the largest establishment, employing six assistants, and the finest equipment in the area. In that same year, Bierstadt contracted with Underwood and Underwood for distribution of his stereoviews west of the Mississippi, and this furthered his fame and business achievement.

The inscription "Sold only by Underwood and Underwood" can be seen clearly on the reproduced stereocard "Cave of the Winds from Maid of the Mist." (See figure 22) This view, taken from the boat under difficult circumstances in choppy water, is carefully framed to include part of the American Falls, a choice of framing very unusual, because during that era photographic composition followed conventions established by painters, and photographers scoffed at the cropping of subjects by the choice of framing. The inclusion of a small section of the American Falls gives balance to the picture and demonstrates Bierstadt's insight into the nature of photographic composition.

Bierstadt continued his own stereographic printing and sales operation at Niagara Falls in addition to his arrangement with Underwood and Underwood. His stereograph "The New Maid of the Mist" (figure 23) copyrighted in 1883, provides proof that he continued to distribute his own work. In this stereoview, Bierstadt must have known that the unmanned boat would be traveling stern-first, and previsualized this composition. Although traveling backwards, the boat appears to be moving forward. The choice of framing makes the rapids appear to be flowing from right to left.

Charles Bierstadt had reached the zenith of his career. He was recognized and respected as a master of his

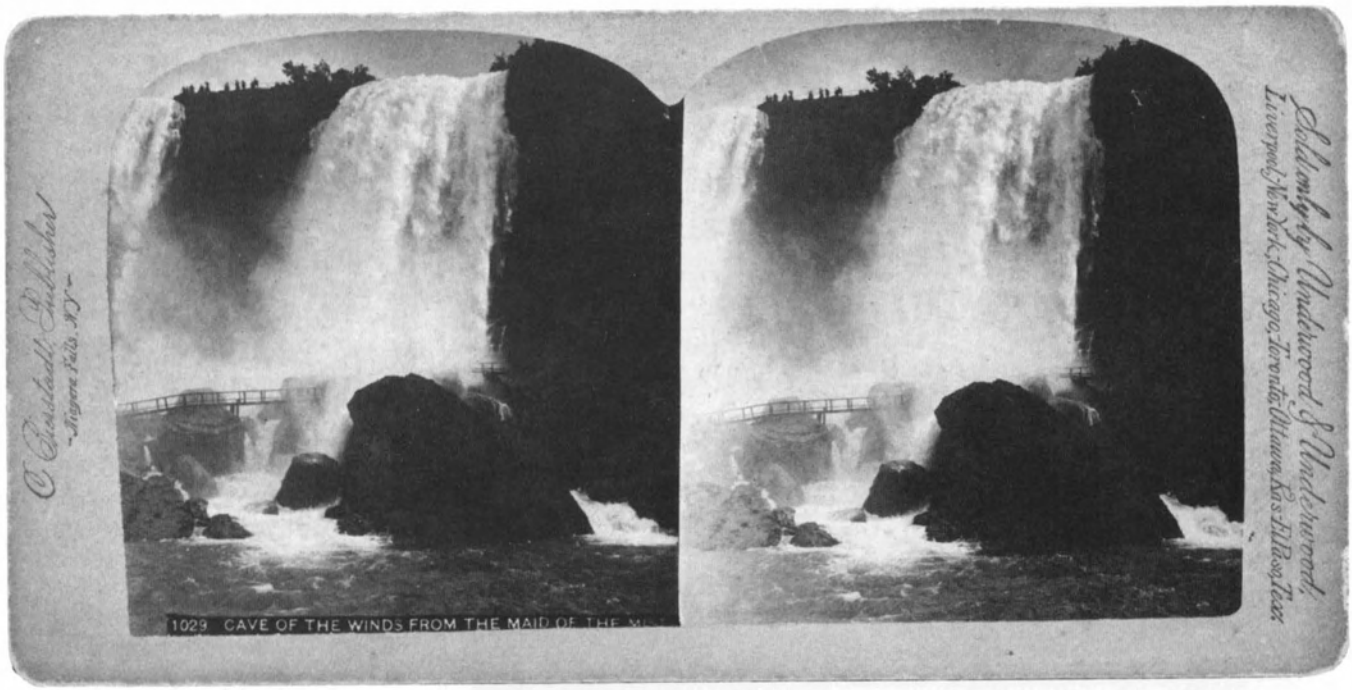
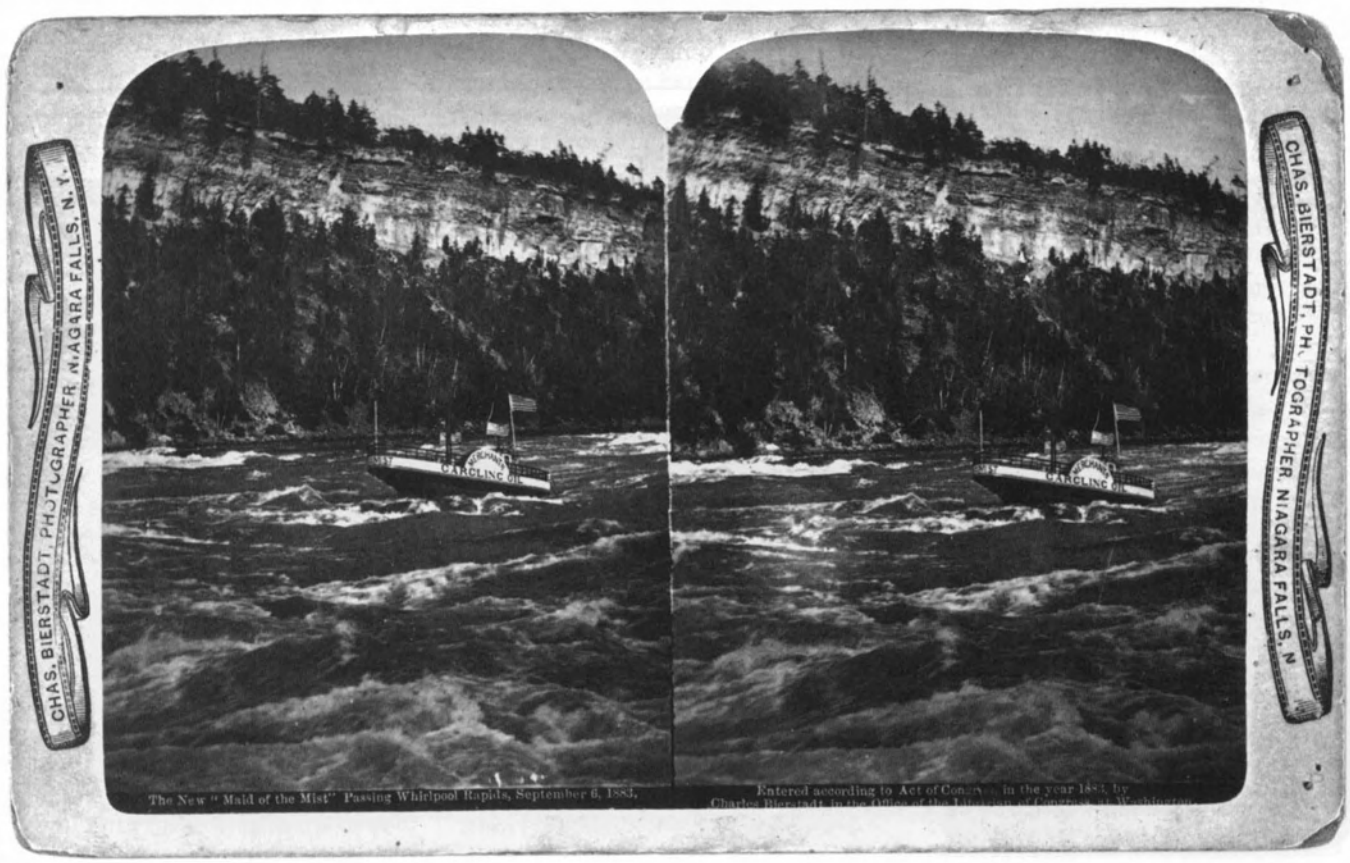

1029 CAVE OF THE WINDS FROM THE MAID OF THE
Published by Underwood & Underwood,
Liverpool, New York, Chicago, Toronto, Ottawa, Kansas City, El Paso, Texas

Fig. 22. Bierstadt No. 1029, "CAVE OF THE WINDS FROM THE MAID OF THE MIST."

profession and had received highest honors among his peers. In March, 1887 Bierstadt published a catalogue containing nearly one thousand stereoviews of Niagara, in addition to slides and views of other notable parts of the United States. He was a commercial success as well as a camera artist, with the imagination and creativity to isolate and frame specific details for dramatic effect, and had technical mastery and professionalism in developing and printing his views.

As one of the acrobatic attractions at Niagara Falls during 1887, Stephen Peer did a tightrope walk across the Niagara Rapids, and was stereographed by the local commercial photographers. Bierstadt's stereo-

Fig. 23. Bierstadt, "The New 'Maid of the Mist' Passing Whirlpool Rapids, September 6, 1883."


CHAS. BIERSTADT, PHOTOGRAPHER, NIAGARA FALLS, N. Y.
CHAS. BIERSTADT, PHOTOGRAPHER, NIAGARA FALLS, N
The New "Maid of the Mist" Passing Whirlpool Rapids, September 6, 1883.

THE NEW MAID OF THE MIST.

Instantaneous view of the new "Maid of the Mist," taken from the American side, while passing through the Whirlpool Rapids, Niagara River, Sept. 6th, 1883 The interest in this portion of the Niagara being newly awakened by the fatal swim of Capt. Webb, the new "Maid" was launched for the purpose of making a test of the velocity and peculiar currents of the Rapids and waters of the Whirlpool, which might be interesting from a curious if not scientific stand-point. The boat here is in the power of the circular current of the Whirlpool, riding stern foremost. She is not an exact reproduction of the original "Maid of the Mist," being about one-third smaller, or fifty-two feet long, sixteen feet beam, depth of hold eight feet. She was towed from her moorings opposite the old steamboat landing, at 3:40 P. M., and passing safely the boiling Rapids entered the Whirlpool eleven minutes later. Crossing the pool she was turned around several times, and finally drifted stem foremost upon the Canadian shore. Here she was boarded by pirates who, after despoiling her of flags and valuables, including a box of the celebrated Merchant's Gargling Oil, pushed her after ten minutes' detention, back into the current. Drifting slowly in the smooth waters opposite Queenstown, the new "Maid" was taken possession of by the Canadians, but re-captured by Americans armed with authority from the owners, was towed triumphantly into Lewiston at 5:20, her voyage completed without disaster. Average speed throughout the trip fifteen miles an hour.

The parties by whom this boat was fitted out an voyage planned, finding the undertaking required greater outlay than anticipated, were induced upon payment of a liberal sum, to devote the new "Maid of the Mist" secondarily to the advertising interests of Merchant's Gargling Oil, manufactured at Lockport, N. Y.

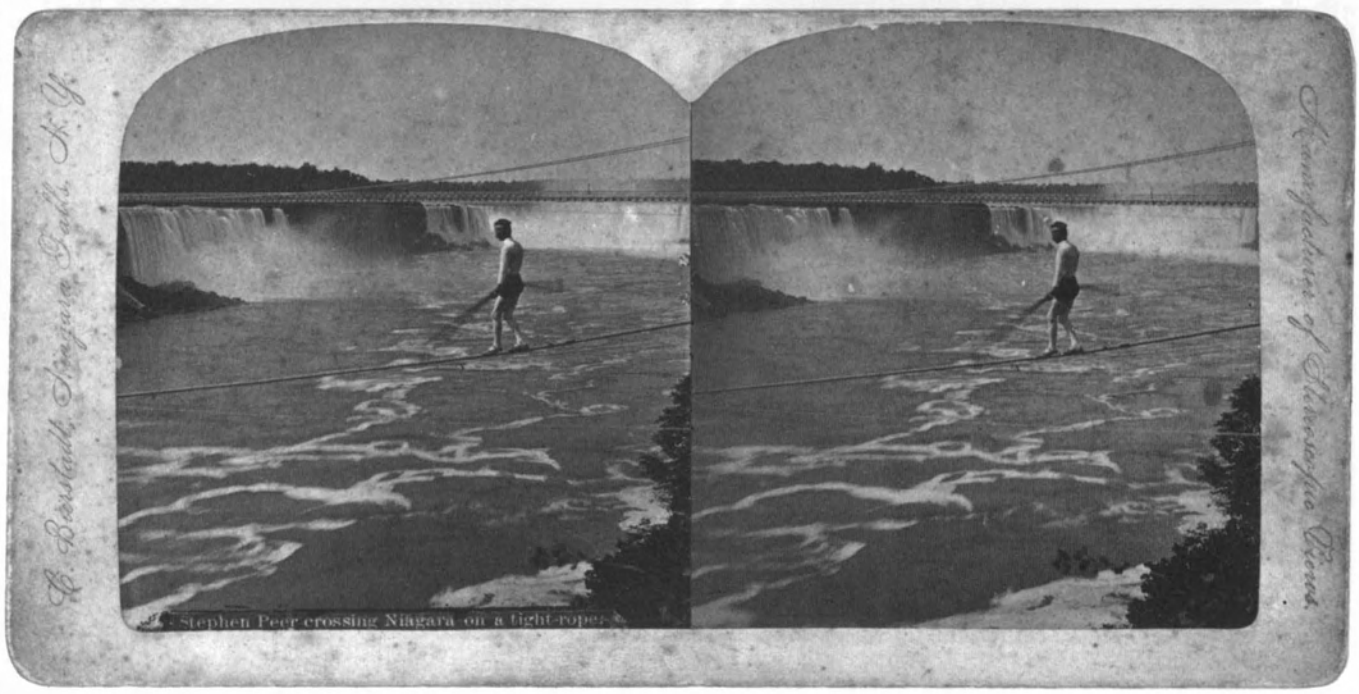
Fig. 24. The story appearing on the back of Fig. 23.

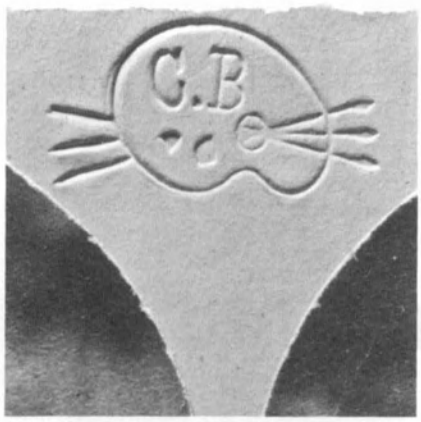
graph of this event (figure 25) shows his keen sense of compositional balance. He used the Suspension Bridge in the background to create a frame within the frame, and also to emphasize and balance the Falls, adding visual drama to the scene. The vertical frame is used to stress height, and the broad expanse of churning water imparts a sense of Peer's vulnerability and danger.

Fourteen years earlier, Peer had worked as Ferini's assistant in a similar act. When he later mimicked Ferini and started to establish his own daredevil reputation, Ferini tried to do him in by cutting his rope, which failed to be a fatal act. Possibly believing he truly lived a charmed life, three days after the walk pictured in figure 34, Peer tried to repeat his feat at night when he was drunk, and fell to his death. No doubt his demise in this spectacular fashion enhanced the sale of this stereograph.

There is a certain irony in contrasting the evidence of Charles Bierstadt's success and renown in 1887 with the misfortunes of his two brothers in that same year. Albert's popularity and reputation as a landscape painter had declined, and in that year he declared personal bankruptcy, (although his wife was an extremely wealthy woman in her own right), and Edward's studio in New York City was gutted by fire. There is no recorded evidence that Charles helped his brothers materially in their difficulties, but we can surmise that there was at least contact and emotional support. We do know that his sisters had moved to Niagara Falls some years earlier, and

Fig. 25. Bierstadt, "Stephen Peer crossing Niagara on a tight-rope." (John Miracle Collection.)





Charles lived with one of his sisters and her family. This is more evidence of the close-knit relationship within the Bierstadt family.

By 1891, Bierstadt was no longer listed as a photographer in the *Niagara Falls Directory*, although he continued to publish stereoviews and catered to business at his Main Street studio for the rest of his life. Having settled into a relatively quiet life style, it must have been a traumatic experience for him when his long-ago wife appeared on the scene in 1897. According to the newspaper report, Charles petitioned for an absolute decree of divorce, and declared that he had no such financial fortune as Lucy had claimed. No follow-up on that court appearance could be found in later newspapers, but there was a sequel of sorts.

In 1903, Charles Bierstadt died of Bright's Disease at the age of eighty-four. He had arranged his personal affairs so that his (ex)wife could have no share in his estate when he died. He conveyed some of his property to his sisters, and the legal complications of his will deprived his daughter Helen of some property that was rightfully hers. The last local newspaper article referring to Charles Bierstadt during his era was a short account of Helen's court appearance in an attempt to untangle those legal complications.

Charles Bierstadt, the man, presents an interesting study in contrasts. Stern, unforgiving and uncompromising, yet he maintained close, strong and supportive relationships within his family. A shrewd, mercurial entrepreneur, who was successful at making money in an overcrowded and chancy profession, he actively sought out and utilized technical advances to improve the quality of his work. Combined with his meticulous craftsmanship was an eye for beauty and the aesthetic possibilities of photography. His best work reflects the same discipline and structure that characterized his life; order and balance, tight control of framing plus delicate nuances of shading in repeating patterns, strong use of chiaroscuro to compensate for the absence of color, tranquility suggested in reflecting pools backed by the violence of the Falls. Although some of his work was banal and blatantly commercial, documentary shots of famous places or persons, Bierstadt's finest work is deserving of appreciation and study as art. He was a virtuoso with the camera, and was a pioneer in the exploitation of photography, and especially stereophotography, as a medium for artistic expression. ■

I am presently researching the stereographic work of the Bierstadt brothers and Charles Bierstadt for future publications. Anyone with good examples of their work is invited to send descriptions or Xeroxes and prices to: Mark DiLaura, 9 Bigelow St., Brighton, MA 02135.

Coming: Journal of Historical Research on Stereographers

We would like to announce the publication of a scholarly journal entitled, *American Stereo Journal*. This publication will offer comprehensive articles about the work and careers of important American stereo photographers. This exciting era in photography has been overlooked in the literature. If you enjoyed this article about Charles Bierstadt, consider a subscription to this new publication. The journal will be issued quarterly at a yearly subscription price of $20 US, $25 Canada and $35 international air mail. Send your name and address to American Stereo Journal, P.O.Box 549, Cambridge, MA 02138. Make checks payable to American Stereo Journal.

Letters (Continued from page 3)

was not a rangefinder, but was a specialized pair of binoculars so you could extend the tubes horizontally for viewing from behind a tree or place them in a vertical position for viewing from the shelter of a wall. I believe that's what your "stereoscopic rangefinder" is. In 1932 the U.S. Army was still using a lot of World War I equipment furnished by the French, for example the light artillery was the French 75 mm. gun (horse drawn), and probably also this "BC Scope" as well as a range finder instrument that was a tube, 1 meter long, mounted horizontally on a tripod capable of measuring the range to 20,000 meters at 10X, operating similarly to the rangefinder on a Stereo Realist. By the start of WWII all of these fine optical instruments were replaced and I often wonder what happened to them.

Herman J. Meuron
Honolulu, HI

Random Fusion

Dan Dyckman's Single Image Random Dot Stereograms (May/June '90) were interesting and I determined to try some of my own. As I went back to look at these a day or two later, however, the patterns were different than I remembered from my first look.

The problem resolved itself when I discovered I was using a different interocular distance than indicated by his printed fusion spots. Viewing at 2 or even 3 times that distance results in similar although generally more complex patterns.

An interesting effect is also created by rocking the image about its horizontal and vertical axes. This results in the apparent leaning of the vertical structures as they continue to point at your eyes.

James R. McIntyre
Lafayette, IN ■

2nd Run for AZ 3-D

The stereograph exhibit TERRITORIAL ARIZONA IN 3-D, by NSA member Jeremy Rowe, will open again from Jan. 20 through June 30, '91. The 170 original views and assorted equipment can be seen at Sharlot Hall Museum, 415 Gurley St.,Prescott, AZ.

SOLIDO

The Dome Screen Rebirth of Eclipse System Movies

by Don Marren

The eagerly awaited arrival of IMAX SOLIDO at Expo '90 in Osaka, Japan, with the film "Echoes of the Sun" seemed like a natural progression in the development of big screen IMAX technology. (See Mar./Apr. 1990, page 39.)

Acclaimed for its images of unsurpassed size (up to seven stories high and up to 90' wide), stunning clarity and overall impact, the IMAX experience has always been so strong that the theater itself seemed to move and fly as IMAX put the audience "in the picture." IMAX 3-D, which debuted at Vancouver's Expo '86, took that IMAX experience one step further and made everything even more realistic with its breathtaking stereo images. Robert E. Carr and R.M. Hayes, authors of "Wide Screen Movies", went so far as to state that IMAX 3-D "may be the most awesome motion picture technique developed." Still, not everyone was happy. Nit-pickers pointed out that even with IMAX 3-D, the window effect diminished the overall power of the realistic stereo images.

Now, with IMAX SOLIDO, a revolutionary new 3-D wraparound system, Imax has taken its giant screen system one step further (a big leap in fact) with an innovative process that visually encompasses the audience. The window effect of viewing a 3-D film is gone forever — at last! The IMAX SOLIDO umbrella-shaped dome screen, which measures 79' in diameter, occupies the audience's total field of view. Now 3-D images extend in front, above and to the sides of the viewer. The overall effect is that there is no screen at all as the audience is thrust into a sense of deep space. In fact, the audience is inside the image itself, as 3-D objects move by and through them. Without question, this is the ultimate film experience. It's certainly the best 3-D experience you're likely to see for some time.

Finishing touches are applied to the screen dome in the IMAX SOLIDO theater in Osaka. Instead of a metallic surface, a high-gain white screen is used to direct maximum light back to the audience at all angles and compensate for the light lost through the liquid crystal glasses. The projector housing is the flat-topped object at the center, between rows of seats. The next SOLIDO presentation will be at Expo '92 in Seville, Spain.

Giant screen aside, the real key to IMAX SOLIDO is the technologically advanced glasses using lenses filled with liquid-crystal diodes, the same material that forms numbers or letters on digital watches, calculators and other electronic equipment. The cordless, battery-powered glasses function as electronic shutters which are synchronized with an infrared signal originating in the projection booth. First the right-eye lens is blacked out while one projector displays the left-eye image, then the left-eye lens is blacked out as the projector displays the right-eye image. When this is repeated 48 times a second, the brain goes to work and does the rest, assimilating the two images to create the 3-D effect. Several "emitters" around the room insure that the infrared signal reaches the sensor on the front of each pair of glasses, regardless of seat location or head position.

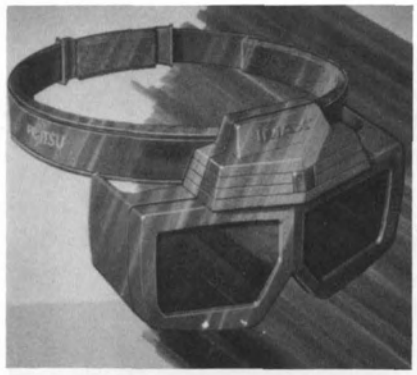
It should be noted that viewers using a mechanical-shutter system to eclipse images had been tried commercially once before in the early twenties. Called Televiev, the viewers had a synchronized spinning shutter to black out the opposite images. At the time, these radically different viewers were considered too

Cover of the program from the 1922 eclipse system 3-D presentation at New York's Selwyn theater. A synchronized motor spun a shutter in front of your eyes 68 years before SOLIDO liquid crystal glasses were to again present eclipse system movies.

costly and too impractical for movie theaters. (A detailed description of Teleview can be found in R.M. Hayes' recent book, "3-D Movies — A History & Filmography of Sterescopic Cinema".)

The Best 3-D System in the World?

Ask 10 different people at Imax what SOLIDO means, and you're bound to get 10 different answers. It took William Shaw, Imax Senior Vice President and the engineer responsible for the development of the original system, to clear up the mystery. Shaw, who led the engineering teams which subsequently developed OMNIMAX, OMNIMAX 3-D, IMAX 3-D, IMAX MAGIC CARPET and IMAX SOLIDO, said, "The company was trying to find a name that was distinct and suggested something more than 3-D. Solido, a Spanish word, suggests solidity and a better image than what most people are used to seeing. Still there were other reasons for selecting that name. Besides being relatively appropriate, the name chosen had to be a word that wasn't in the English language so it could be trademarked easily."



SOLIDO cordless liquid crystal glasses with infrared receiver at the center for synchronizing the lenses with the projector. The glasses are made by Tektronix of Beaverton, Oregon — one of two U.S. firms pioneering the use of liquid crystal technology for stereoscopic video and computer applications.

Sally Dundas, who coproduced "Echoes of the Sun" (the first IMAX SOLIDO film) along with Roman Kroiter and Fumio Sumi, put it all in proper perspective by claiming that "SOLIDO means absolutely the best 3-D in the world." And she points out with pride that "Echoes" and the IMAX 3-D film, "The Last Buffalo", were the two big runaway hits at Expo '90 this year.

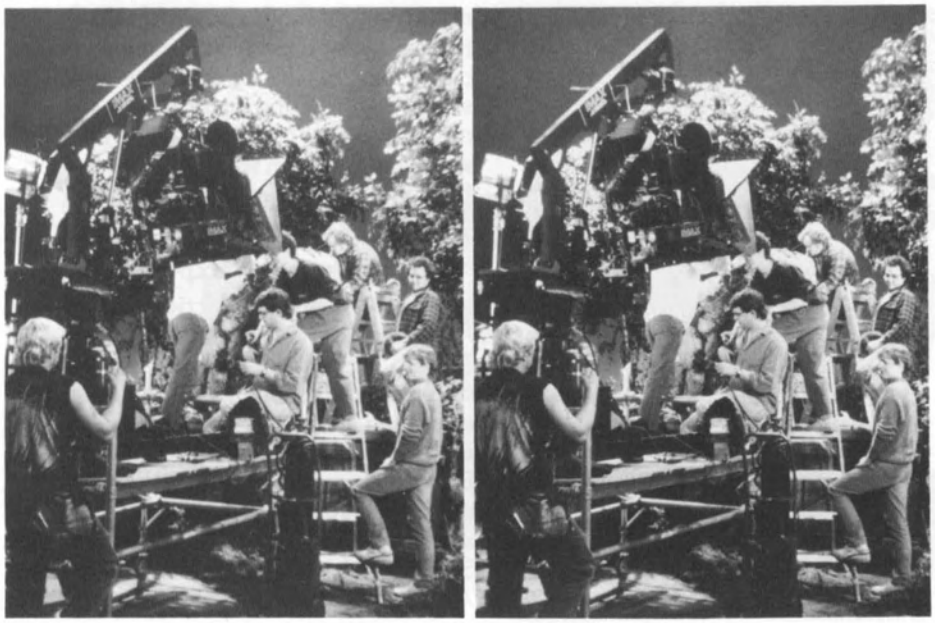
With such a large wraparound screen, one would expect there would be some seats that didn't offer optimum 3-D viewing in the 329-seat theater. "There always have to be compromises," says Dundas. "There's always a battle of wills between Imax and the sponsor who wants to wedge in as many seats as possible into the theater. We tried to make all the seats workable. Only a small cluster of about 10 seats in the corners are slightly less than terrific, but the situation is better than it was with IMAX 3-D in Vancouver. Imax auditoriums are always changing as new theaters are designed. From IMAX SOLIDO in Osaka, we've learned that in future theaters this small cluster of seats will be moved to the side and to the back."

According to Dundas, everybody really sees a different film. Apparently with such a huge 3-D image to look at, people in the audience are drawn to some action or image in one area of the screen while other people are absorbed in another part of the 3-D image. This is especially true in the computer graphics sequence when different parts of the audience are engrossed in watching the relationship between different molecules. "In a way it's a shame that with so much happening on different parts of the screen at one time during this sequence, a person who only sees the film once will never really see it all."

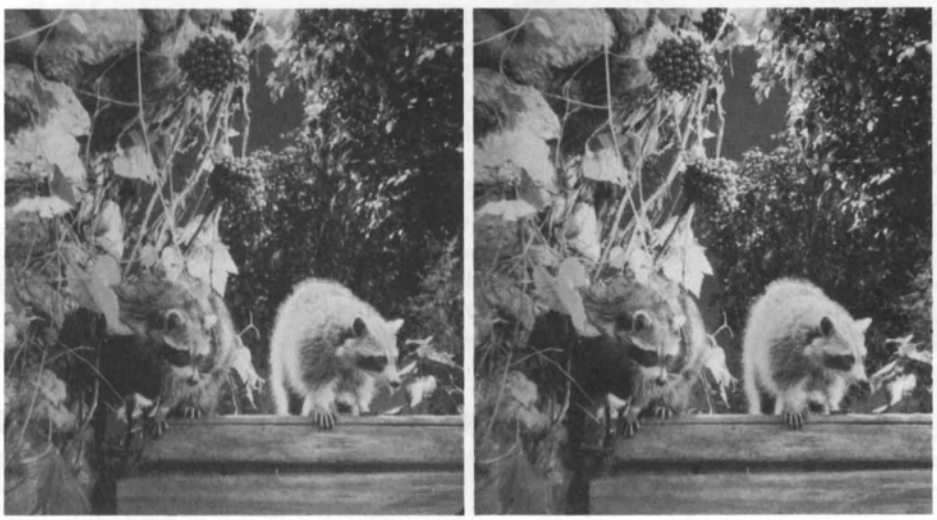
New 3-D Improvements Introduced at Expo '90

Before starting production on "Echoes of the Sun" and "The Last Buffalo," Imax engineers and producers methodically reviewed and examined all aspects of IMAX 3-D used in "Transitions" in Vancouver. Everything was improved in the optical path — from new lenses, film stock, and lab work to projection (see Stereo World, May/June 1989). According to Dundas and Shaw, Imax is presently working on a new camera system for both IMAX SOLIDO and IMAX 3-D. The challenge now is to make a lighter weight camera that will make it easier to shoot stereo films. (The current camera weighs about 350 pounds while the camera with a small crane weighs about 1200 pounds combined.) Dundas says that "by developing a camera system that is adaptable to standard camera equipment, the range of subject matter in any Imax stereo film will be increased enormously." Dundas had hoped all of these developments would be in place for her current project, an IMAX wildlife film on Mountain Gorillas for the new

Actual size IMAX SOLIDO frame the "Echoes of the Sun" puppet sequence. These life-size characters from Canada's Theatre de L'Oeil help make the point that all life is dependent on sunlight and its mediator, the green matter of plants.



Shooting the vineyard sequence for "Echoes of the Sun." Except for the wide angle lenses, the camera rig for SOLIDO is very similar to that used by "regular" IMAX 3-D. (See May/June '89, page 13.) (Stereo by Claude Pare.)



"Echoes of the Sun" combines computer graphics with live action vignettes to illustrate how photosynthesis converts the sun's energy into stored energy in plants, which then provide energy to animals and man. These trained raccoons were used to help make the point in the vineyard sequence. (Stereo by Noel Archambault.)

Natural History Film Unit. She wanted to shoot the film in 3-D but there was just no way the present equipment could be hauled into the Virunga Forests of Africa's Rwanda jungles and make a film without great difficulty.

Other immediate improvements in the IMAX SOLIDO equipment include the use of 30mm lenses in place of the restrictive 40mm wide-angle lenses. "Other than that, I don't know if you can really make the 3-D images better than they are in IMAX SOLIDO and IMAX 3-D. Our incredible attention to minute technical details has resulted in unprecedented clarity for 3-D, with absolutely no eye strain whatsoever. You'll have to go a long way to match our systems."

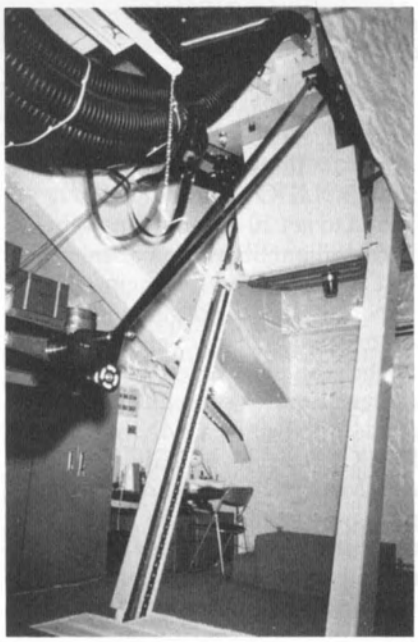
More 3-D Theaters Are On the Way

The big news is that most of the new Imax theaters being designed and built today will meet the requirements of IMAX 3-D. Around Christmastime, "The Last Buffalo" will be shown in Vancouver. The first two new IMAX 3-D theaters are scheduled to open in 1993 (not soon enough!) at Moody Gardens in Galveston, Texas, and in the National Museum of Science and Technology in Kao-hsiung, Taiwan.

IMAX SOLIDO is another story. "Echoes of the Sun" won't be screened again until Expo '92 in Seville, Spain, at the Fujitsu Pavilion. Don't expect to see "Echoes" at your local OMNIMAX theater simply because the dome-shaped screens are similar. In fact, the screens are different! The OMNIMAX screen is a silver grey one while the IMAX SOLIDO screen is a high-gain white one which, because of the 30% light loss with the liquid-crystal glasses, directs light back to the audience and to the theater's sides. "It would be possible but we would have to adjust the geometry somewhat," says William Shaw. "The relationship of the projectors to the dome with a high-gain screen is a bit critical. For most present OMNIMAX theaters we really wouldn't want to change them over because the light distribution to the audience wouldn't be as good as we would like it to be."

A Commitment to 3-D

The success of IMAX SOLIDO and IMAX 3-D at Expo '90 made the management and marketing execu-



To preserve good viewing from all seats, the SOLIDO projector is raised from the projection room below the audience into its small housing between seats at the center of the theater. Film reels, operator and cooling equipment remain below.

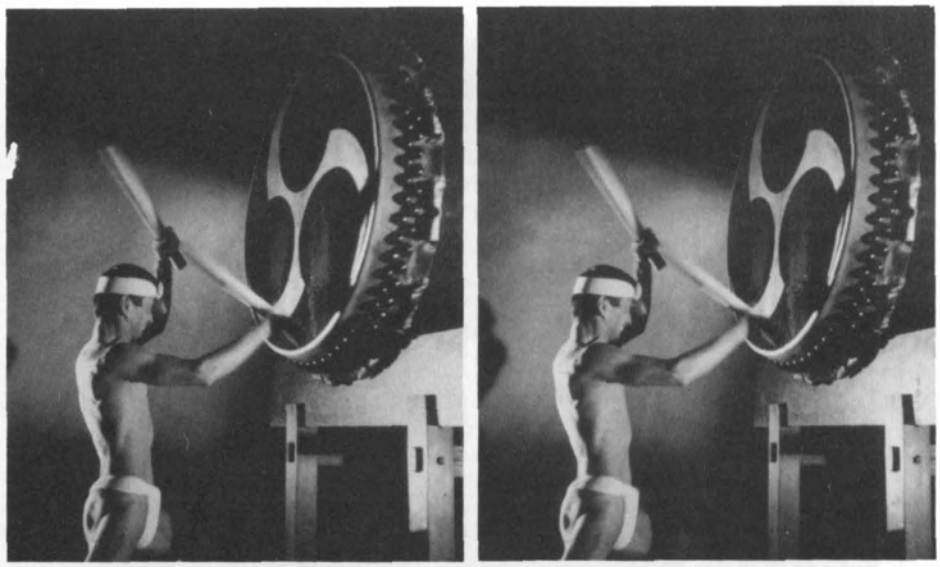
tives at Imax realize that the future potential of the cinema is with 3-D technology. "Everyone is excited because stereo offers different opportunities to make films that have never been made before," says Dundas. "Conventional dramatic films are a long way off. Potential clients at this point in time will continue to be world's fairs. These expositions are useful in testing our new systems as we push them to the limit. Our stereo systems work and there's no discomfort whatsoever in watching them. We see IMAX SOLIDO and IMAX 3-D as the filmmaking of the future."

"Echoes of the Sun"

System: IMAX SOLIDO
Length: 20 minutes
Seating Capacity: 329
Producer/Director: Roman Kroiter
Director: Dr. Nelson Max
Producers: Sally Dundas, Fumio Sumi
Technical Director: Douglas Lerner
Stereographer/Camera Operator: Noel Archambault
Pavilion: Fujitsu Pavilion
Screen Size: 79' (24m)

"The Last Buffalo"

System: IMAX 3-D
Length: 27 minutes
Seating Capacity: 550



The muscle energy provided by sunlight and plants is demonstrated by Japan's Kodo Drummers in the SOLIDO film's powerful action climax. The group, from the Japanese island of Sado, toured Canada and the U.S. in 1988 and 1989. (Stereo by Noel Archambault.) (A sample of the film's computer generated imagery appeared on page 39 of the Mar./Apr. '90 Stereo World.*)*

Producer/Director: Roman Kroiter
Director: Stephen Low
Executive Producer: Susumu Sakane
Producer: Sally Dundas
Stereographer/Camera Operator: Noel Archambault
Pavilion: Suntory Pavilion
Screen Size: 64' x 88' (19.5 x 26.9m)

Society

(Continued from page 38)

accept members primarily from the United States and Canada but can consider others so long as language and postal service do not present special problems. So, henceforth, The Stereoscopic Society, American Branch will be known as THE STEREOSCOPIC SOCIETY of AMERICA.

The Society also offers a vote of thanks to Cindy Burnett of Atlanta, Georgia, for all of the wonderful things she has done for us. Cindy serves as the right-hand girl of our Corresponding Secretary. It is always a delight to hear Cindy's voice on the phone when we are trying to resolve some crisis.

Anyone wishing information regarding Society membership should contact the Corresponding Secretary, Jack E. Cavender, 1677 Dorsey Avenue, Suite C, East Point, GA 30344.

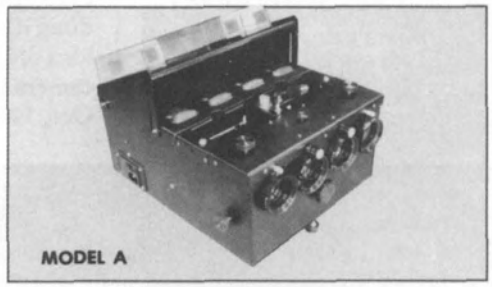
THE BRACKETT DISSOLVER

CUSTOM MADE 3-D PROJECTOR WITH SLIDE DISSOLVE

The Brackett Dissolver features the most desired and professional projection technique...

Dissolve Slide Transitions

The Brackett Dissolver is like two stereo projectors in one compact unit. This unique design provides features not found in any other stereo projector.



STANDARD STEREO FORMAT
— Accepts Realist format slides in glass and cardboard mounts up to seven sprocket size (24 X 28MM).

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BRIGHT ILLUMINATION
— Four efficient halogen lamps provide high light output at low wattage.

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— Two quiet fans operate continuously to cool both sides of the slides and the optics.

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— Dual and single focus controls. Conveniently grouped vertical and horizontal lens controls.

TOP OF PROJECTOR SLIDE STORAGE
— Built-in shelves store slide trays on top of projector for easy insertion and removal. Projector uses economical memo pad trays.

SOUND SYNC. LIGHT
— A cue light on the projector, operated from one track of any two track tape recorder, signals the operator to change slides.

EASY LAMP REPLACEMENT
— Hinged cover provides easy access to projection lamps.

COMPACT AND LIGHTWEIGHT
— L 13" x W 12" x H 7"-Wt. 24 lbs.

This projector is custom made in limited quantities. The current price is... **$1695.** For ordering information or additional details write:

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CURRENT INFORMATION ON STEREO TODAY

by David Starkman & John Dennis

Newviews

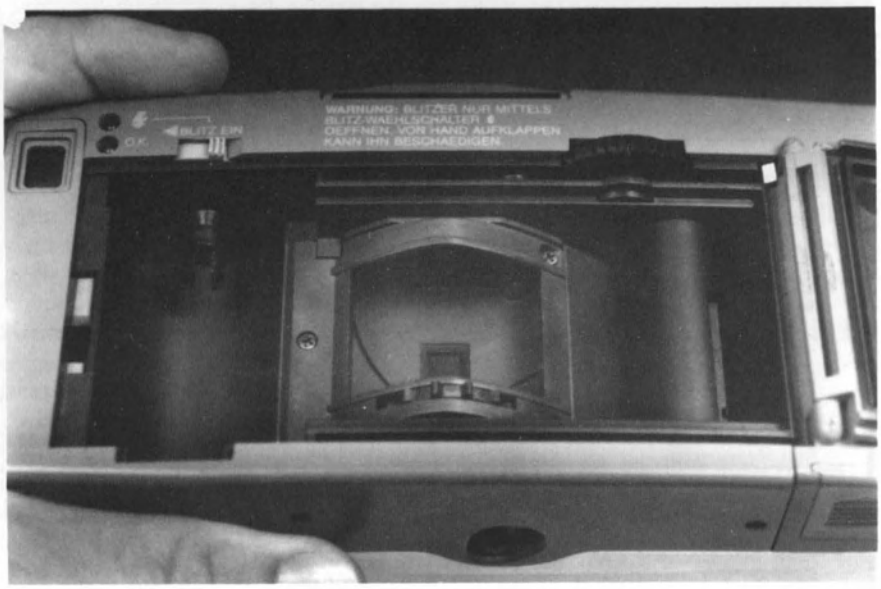
The New "LOREO" Stereo Camera

Hot on the heels of the new Trilogy Stereo Camera (see *Stereo World* Nov./Dec. 1989) comes yet ANOTHER new stereo camera! Happily however, the LOREO stereo camera is not just another Nimslo clone. In fact, it is not a special-printing-required lenticular 3-D camera at all, but one that simply and ingeniously allows anyone to take 3-D snapshots *without any special processing or mounting required.*

One look at the LOREO and you know that there is something different about it. It is physically about the same size (5¾" × 3" × 2") and weight (10 oz. with 2 AA batteries installed) as many of today's simple point-and-shoot plastic cameras. But instead of the normal single lens in the center there is a 1½" × 3½" glass panel covering a set of angled mirrors.

One's first thought is "they've built a beam splitter permanently into a camera!" (For those of you not familiar with beam-splitters, these are mirror or prism devices that are fitted in front of a camera's normal lens, and split the normal full frame image into two side-by-side vertical format half-frame stereo images.) Yes, that's exactly what LOREO has done, but done it in a very unique way. The idea of building a beam-splitter into a camera is not new — see the Sept./Oct. 1987 *Stereo World* article about the toy 110 "Dorimon" 3-D camera. But as far as I know this is the first time one has been incorporated into a 35mm camera, and, when you look at the mirror and film path arrangement, you will see that this is indeed new and unique.

The Loreo Camera with its built-in flash unit ready for use. (The flash is aimed up into the pop-up mirror.)

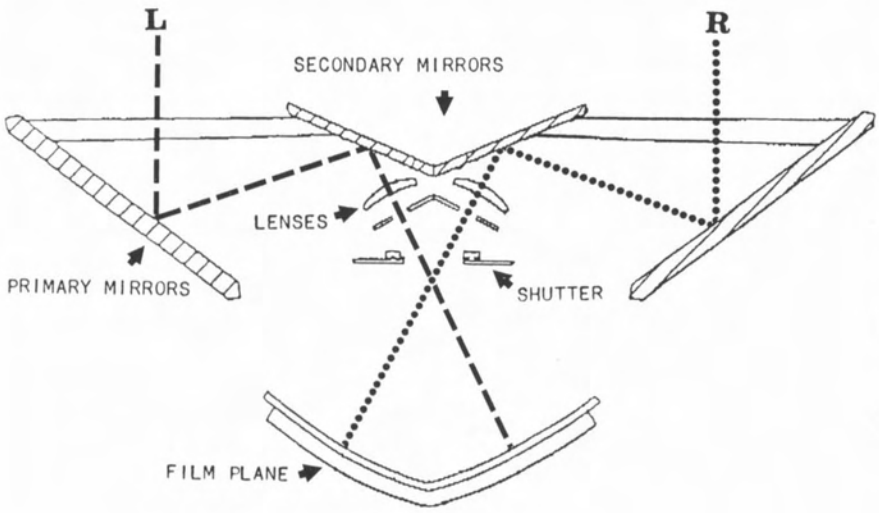


With the back open, the Loreo's "bent" film plane and single shutter are visible.

Beam splitters in front of a single lens (such as the Stereo Tach, Stitz, Pentax and Franka) exhibit a slight amount of keystone distortion in opposite directions. It is minor, but arguably there. In the 1950's Zeiss, Leica, and Nikon made quality beam splitter systems that went in front of side-by-side stereo lenses that replaced the single camera lens. These were an improvement, but produced transposed images. This meant that prints had to be cut apart and remounted, and the same was true for slides, unless one also got one of their expensive transposing slide viewers for this format.

The LOREO stereo camera has come up with a design that is unique in the history of stereo cameras, and takes advantage of the best aspects of

An uncut, standard 4 x 6" print from a "single" Loreo frame. Susan Pinsky and David Burder demonstrate the depth of field of the camera's fixed focus lenses. (Stereo by David Starkman.)



Loreo light path diagram. The mirrors and lenses direct the images through a common shutter. Narrow openings for the light paths remove the need for any septum.

Image sharpness suffers little from the plastic optics and plastic front-surface mirrors in this 10 X enlargement.

both principal types of beam splitter systems. First, there are actually *two* separate 28mm lenses to give a sharper image free from keystone distortion. Second, by using a unique "bent" film path the images are recorded on film without the usual transposition problem. Finally, using this unique set of lens, mirror, and film-plane angles has allowed the design to be very compact.

The end result is a right and left image stereo pair recorded in vertical half frame format (18mm × 24mm) within the normal 24mm × 36mm film frame of 35mm film. Since the overall frame size is the normal standard, and since the right image is recorded on the right side and the left is on the left, one can give the exposed film to any type of print lab, and simply ask for 3½ × 5" or 4 × 6" prints, with no further special instructions.

What you get back is a ready-to-view stereo print pair. This is just what LOREO had in mind, so the camera comes with an equally well designed folding stereo print viewer. The print viewer will take either of the popular standard print sizes, and has an incredibly large pair of pris-

Trimmed for improved window and alignment, a 4 x 6" color print from a commercial processor yielded this pair ready for mounting on a standard 3½ x 7" card. Or, the self-masking Q-Vue "X" mount is just right for Loreo pairs! (See Stereo World *July/Aug. '87, page 23.) (Stereo of Joy Aubrey by David Starkman.)*

matic lenses (each one 2" wide and 2½" high). The large lenses mean that any sort of interocular adjustment is totally unnecessary, and even focus seems to be universal. The trade-off is that the magnification is on the low side. Personally, I prefer viewing the LOREO prints with the Franka 3-D print viewer. Focusing is required, but the image is much closer to life size.

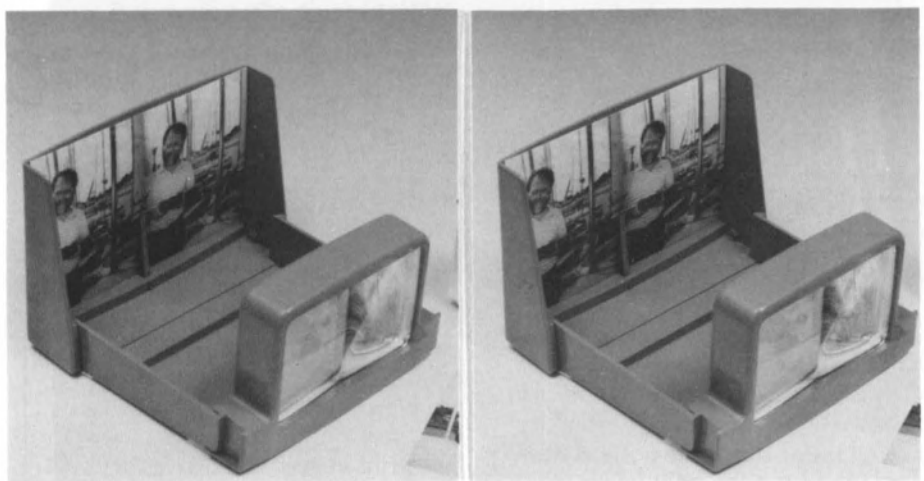
Although this may not be the sophisticated stereo camera that long time stereo buffs would want, I think, if the concept catches on, that the LOREO camera has much more market potential than the Nimslo and its descendants. My reasoning is that the entire concept is designed to work within the existing 35mm film and printing system. Once the camera is bought, it is used as a normal camera, without any special instructions to the lab when printing.

Technical Specifications

- Size: 5¾" × 3" × 2"
- Weight: 10 oz. with 2 AA batteries
- Film Requirements: Normal ISO 200 35mm negative print film is recommended (ISO 400 for flash).
- Shutter speed: One speed. About 1/100.
- Aperture: Two apertures. f/18 Daylight; f/11 Flash.
- Focus: Fixed focus. Sharp from 2.5' to infinity in daylight. (I tested this and it really is sharp at 2.5' due to the small aperture.)
- Meter: Low level red light indicator when shutter partially depressed.
- Stereo Base: About 2¼ inches.
- Flash: Built-in pop-up reflector flash. Green indicator when flash is ready.
- Power requirements: Mechanical shutter will work without batteries. 2 AA batteries power flash and indicator lights.
- Film advance: Thumb wheel film advance, manual rewind knob.
- Viewfinder: Optical type.
- Price: $119.95 with viewer, and carrying pouch.

Currently available in the USA only from Reel 3-D Enterprises, Inc., P.O. Box 2368, Culver City, CA 90231. Phone (213) 837-2368. Write or call for exact ordering information. (Price does not include sales tax or shipping & handling.)

—David Starkman



The Loreo viewer accepts 4 x 6" OR 3½ x 5" prints.

This column *depends* on readers for information. (We don't know everything!) Send information or questions to David Starkman, P.O. Box 2368, Culver City, CA 90231.

Dino Zone

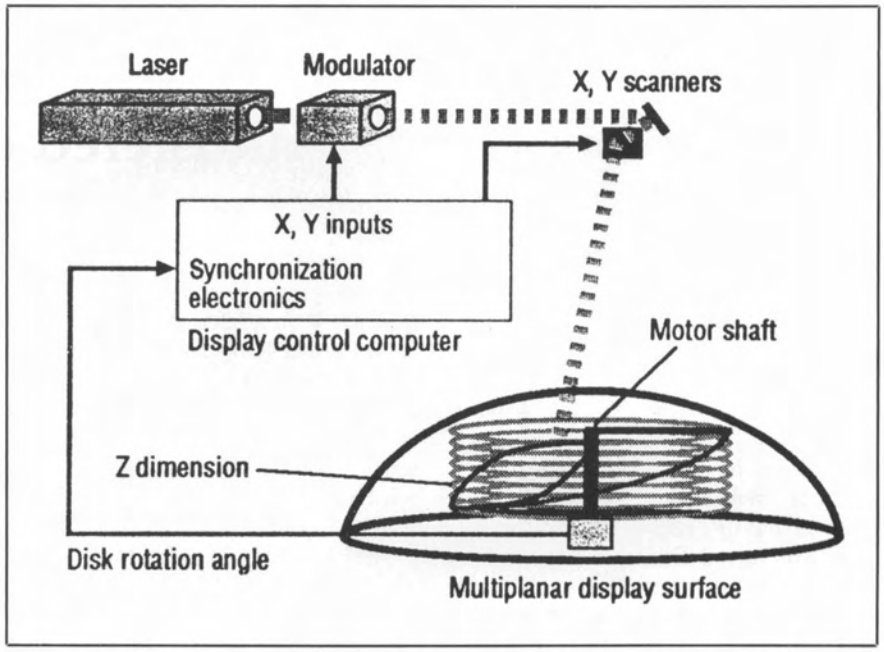
Scheduled for a December, 1990 release is the "3-D Dino-Pack," a special package from 3-D comic publisher Ray Zone containing the 24 page 3-D comic book "Tyranostar," a 14×20" TOR 3-D poster, and a pair of die-cut, 4-color Dinosaur 3-D glasses. The Dino-Pack is $4.95 and should be available at your local comics store, or contact The 3-D Zone, 1872 Hillhurst Ave., Los Angeles, CA 90027.

OmniView — A New Spin on Laser Sculpture

The most sophisticated "volumetric" 3-D display system yet seen was recently introduced by Texas Instruments Inc. Called OmniView, the device uses a patented laser illumination system and a spinning, translucent, paraboloid screen on which 3-D images appear under a 24" diameter plastic dome. The projected images appear to float in space and can be viewed from anywhere around or above the dome.

Moving images can be displayed and manipulated in real time in a sort of 3-D computer graphics 360° light-sculpture. The prototype system limits objects to a depth of about 4 inches per side in the display area, although the volume of the disk can be modified from tall and narrow to short and wide depending on needed area. The 150-mW argon laser beam impinges on and through the disk, which looks a bit like something out of an oversize food processor and spins at 600 rpm.

TI is looking for partners interested in applications that would scale up OmniView for displays up to room size for things like air traffic control systems or medical and scientific data visualization systems.



Basic elements of TI's OmniView prototype.

As many objects and as large a display volume as desired are possible if more lasers and more parallel data processing are added. Even high-end consumer electronics applications are possible — like 360° interactive 3-D games — according to a TI representative. First mentioned in the Nov./Dec. '88 Newviews, we will try to stay current with future reports on this unique blend of mechanical image positioning and laser/computer technology.

Q-DOS — Pulling an Anaglyphic Rabbit from a Single Lens Hat

One of the largest camera lens companies in the world, Vivitar, has announced that it will soon market a single-lens anaglyph 3-D photography system developed by NSA member David Burder of London, England. Called Q-DOS, the system uses anaglyphic (cyan & red) filters at the optical center of the lens to produce slight color fringing in the out-of-focus parts of the image. Objects to the front or rear of the subject in focus acquire the appropriate fringes to appear on those same planes when the color print or slide is viewed with anaglyphic glasses. The more out of focus an object is, the greater will be the separation between the anaglyphic colors in which it appears — thus the greater the apparent depth.

Prints or slides will require no special processing, and the only change in the camera will involve the use of a Q-DOS (Quantum Duplex Optical System) lens. The first Vivitar lenses to be equipped with the Q-DOS filters will be the 70-210mm zoom and the 105mm macro, which will be test marketed in England in mid 1991. The lenses will include a switch to withdraw the duplex dichroic filtration from the lens path for shooting in 2-D. Suggested apertures are between f/2.8 and f/5.6 to insure that enough of the image remains outside the zone of sharp focus to provide the filters something to separate for 3-D. For the same reason, Q-DOS filters will not be used in lenses shorter than 35mm.

The principle behind the system can be demonstrated easily. Tape the red and blue filters from an old pair of anaglyphic glasses to a small magnifying lens so that one covers the left

half, and the other the right half. Then line up two or three small lamps on a table, in a row at a slight angle to the lens — which can be wedged into a hole in a piece of cardboard held up by a couple of books. Hold a piece of thin paper behind the lens and notice that lamps not in focus have red/blue fringes and start to split into separate red and blue images when put farther out of focus. Now put on a pair of anaglyphic glasses and notice the actual 3-D effect that has been pulled out of that single lens, despite a lot of ghosting and distortion.

Those who have a copy of the April, 1974 issue of *American Cinematographer* have seen the rather bland, flat prints made with an earlier effort at a system like this. After several years of work combining the stereo skills of David Burder and the resources of Vivitar, it seems safe to assume that Q-DOS will produce some dramatic 3-D images while taking the concept about as far as possible in practical applications, from prints to films to video.

Stereo purists, of course, will cringe at the thought of any system which *depends* on things being out of focus — a condition rated a class A sin among the majority of active stereographers. The fact that the apparent depth is altered by the f/stop chosen rather than by lens separation will bring up the whole debate of 3-D effect vs true orthostereoscopic imaging. (A matter not about to be settled here and now.) We hope to see some Q-DOS samples soon, and to present more on the system in coming issues.

— John Dennis

Autostereo LCD Unit Wins

Covered in the May/June '90 *Newviews*, The Autostereoscopic 3-D Graphics Monitor from Dimension Technology of Rochester, NY recently won a $300,000 contract with the Air Force for a prototype color model. The small (eight employee) firm beat out competitor Tektronix Inc. by producing a stereoscopic image on a nearly flat screen which requires no glasses — polarized or liquid crystal — to view.

An illumination plate, behind alternating strips of left and right image vertical pixel columns, leaves only the correct columns illuminated for each eye when the observer is at the right distance and position. Apple Macintosh based systems are being developed for both monochrome and color display units for the consumer market. The 640×480 pixel images are manipulated in three dimensions by a mouse curser which is programmed to get larger or smaller as it moves between display levels. The device is designed for computer graphics, and we've heard nothing yet about how pairs of stereoscopic video camera images look on the display screen.

View Your 3-D Slides & Photos On Your Home TV & VCR In StereoScopic 3-D!!!

K-Grafx will transfer your 3-D stereo pair photos or slides (any format) to a Field-Sequential stereoscopic video tape. The 3-D tape is viewable on standard home VCR's and Televisions, including most video TV projectors. Each viewer must wear electronic LCD 3-D glasses. A single decoder box is also required (powers up to 8 LCD glasses).

No more struggling to set up clumsy outdated slide projectors and screens. No more passing around the old hand-held viewer. Truely portable, use anyone's VCR and TV, just bring your tape, 3-D glasses and decoder box.

Keep originals safe and unused. Makes duplicating easy. To create new material you can use a Realist (etc.), Nishika or Nimslo camera (make standard left / right prints with negative film or use slide film). Then transfer to video.

Basic Pricing:

VHS: $ 25 Base Cost SVHS, VHS-C, 8 & Hi8 $ 35 Base Cost
Plus $ .75 per 3-D stereo view
Duplicate tapes (at time of order) VHS: $5
(Can be any mix of slides and photos, any format (Realist, Nimslo, full 35mm, etc.). Negative *not* acceptable)
(Each image is held on screen for as long as you specify)
(Images will cut from one to the next. Fade in/out and dissolving costs extra. Call for price)
Stereo Decoder Box $150
LCD 3-D Glasses (per pair) $ 50
(Toshiba 3-D glasses/decoder can be used. Call and we will discuss the differences)

Prices Do Not include shipping. Calif. Res. add 6.5% tax.

NOTE: TV screen width ratio is different then photo/slide. Either images must be cropped, or sized smaller to fit. Cropping general looks better but portions of picture will be lost. Specify which you prefer. We can crop on all not marked, and size to fit on marked ones. to fit.

K-Grafx will do its best to safe-guard material in it's possession. However, we can not be held liable for any loss or damage due for any reason.

K-Grafx offer the following services: Stereo video graphics animation prodcution for corporate shows & meetings. 3-D titles for your personal show. Touchup scratched slides/photos via computer. Call before sending your order to discuss shipping, turn-around time, etc.

K-Grafx, 29730 Oak Run Rd, Oak Run CA 96069 (916) 472-3048

INFORMATION ON THE REEL WORLD
by Wolfgang & Mary Ann Sell

View-Master

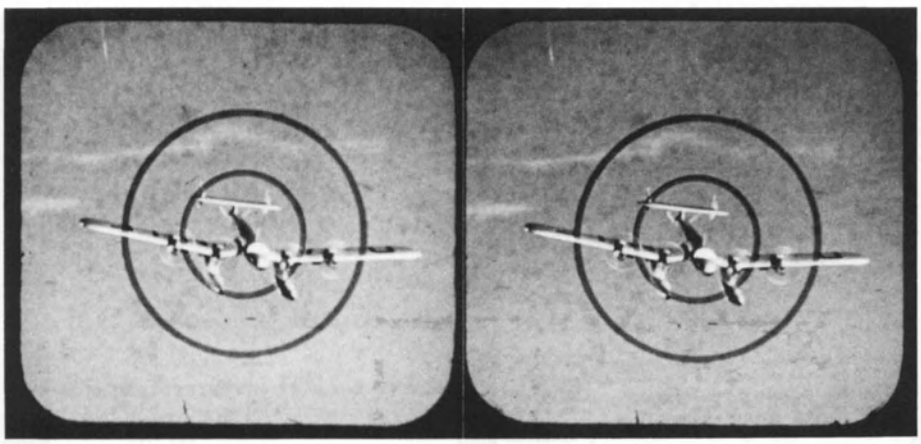
View-Master Goes to War!

December 7, 1941, a day that shocked the world and that caused startling changes in the United States. Suddenly, every industry in the U.S. was geared toward defense. There were shortages everywhere. Film in large quantities became scarce or was only allotted for use by the Armed Forces.

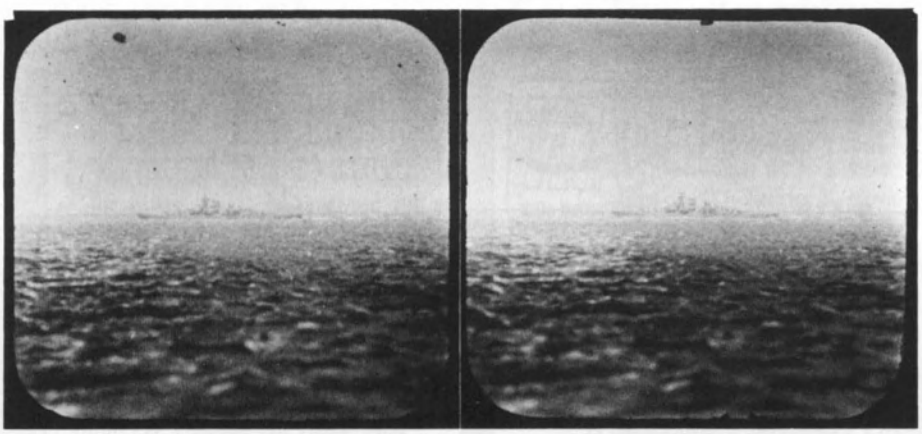
The newly formed Sawyers Corporation saw potential problems. Would production have to stop? Could enough film be found to continue to manufacture the newly developed View-Master reels?

The fears were unfounded, as the War Department decided to contract with Sawyers to produce airplane and ship identification reels in 3-D for use with the View-Master viewer. Flash card identification was already in use by the military but the flat images shown on the card could not give the same dramatic effect as a 3-D image. Because of the government contract, View-Master was assured of a steady supply of film and, subsequently, the survival of the product was insured.

"Ship To Ship" boxed set of 27 reels and two black model B viewers.



Scene from one of the Range Estimation training reels.



Scene from one of the reels in the "Ship To Ship" identification set.

During the war years, almost all of the View-Master reels produced were made for the government. Much of this production was considered semi-classified and the reels were picked up at the Sawyers plant by Armed Forces trucks and distributed directly by them.

Although hundreds of thousands of these reels were made, they are considered rare because the bulk of them were destroyed by the Army after the war.

Apparently many different reels were made up for various branches of the military. We know of at least eight different sets as well as a two reel set on Victory Ship building. No one seems to know exactly how many different sets were made due to the confidentiality of the project. Black Model B viewers accompanied each set. Viewers were also separately issued in a green box marked "One Sawyers View-Master for identifica-

tion reels."

Many servicemen remember using these sets to study airplane identification and range estimation. Unfortunately, the quality of the photos is marginal and some of the planes shown on the reels never even existed. The photos were created by using model airplanes hung up by string and model ships sailing on clay oceans.

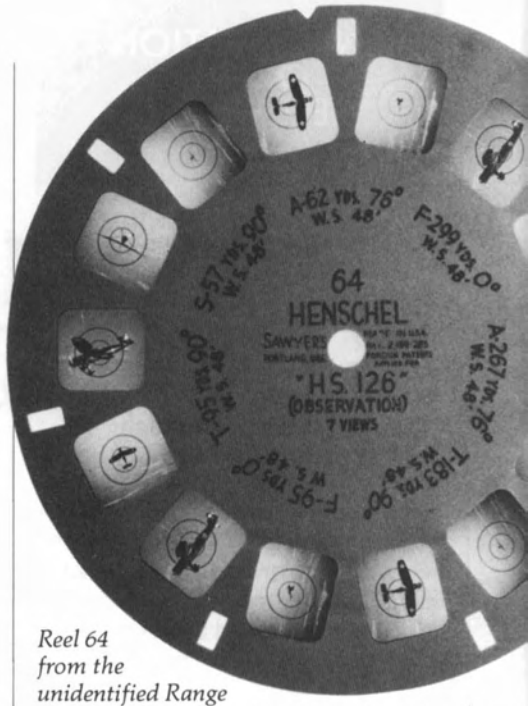
Using the information in our own collection, and with the help of fellow View-Master collectors Gordon Hoffman and Walt Mendoza, the eight different sets we have uncovered are as follows:

U.S. Naval Aviation Training Division set of 100 reels (50 study reels each depicting seven scenes of the same plane and 50 test reels each depicting scenes of seven different planes). Used for air-to-air combat. *Envelope type 3.*

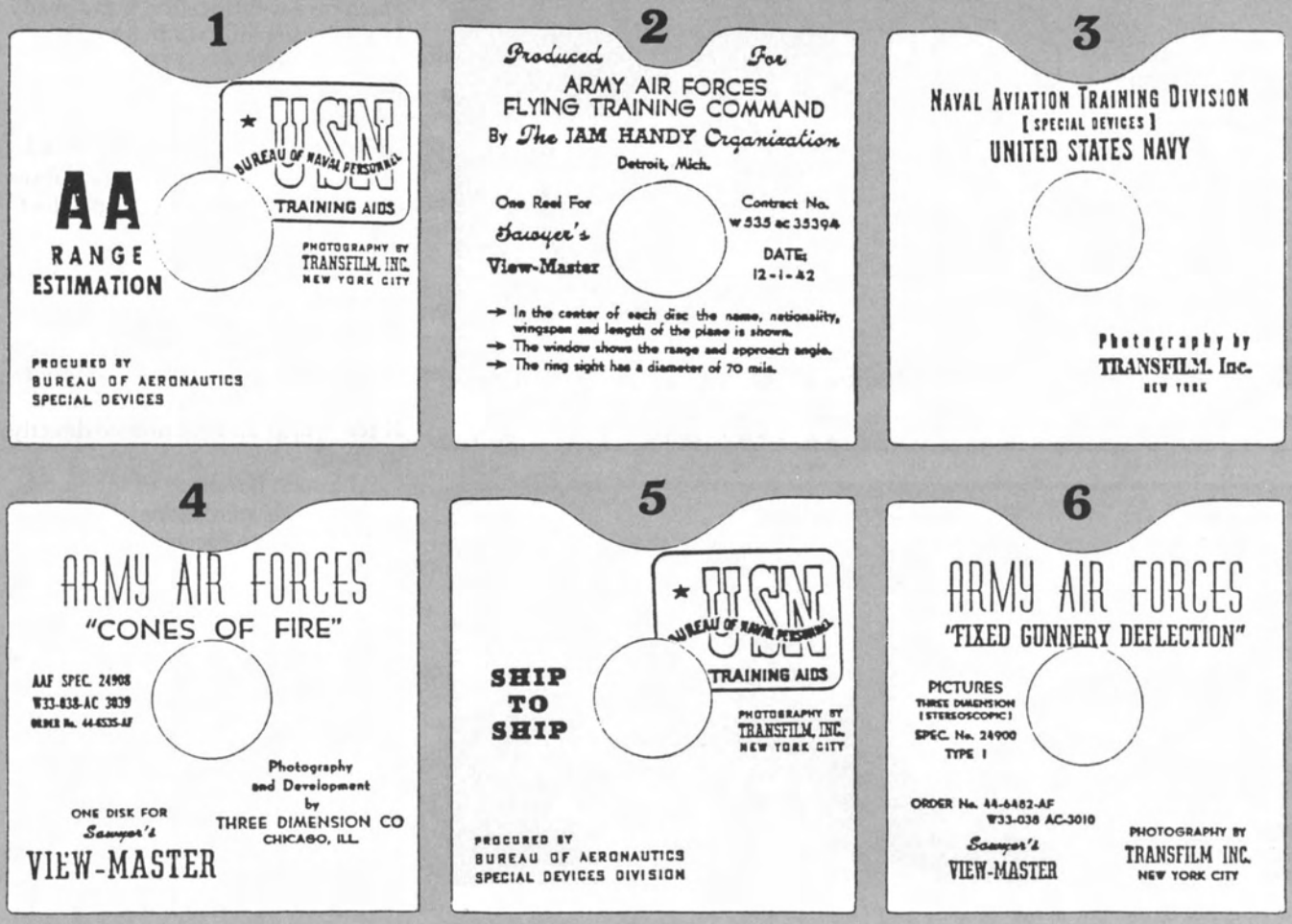
U.S. Naval Aviation Training Division set of 150 reels (same set as above but with 75 study reels and 75 test reels). This is either an earlier or later version of the above. Used for air-to-air combat. *Envelope type 3.*

Army Anti-Aircraft Range Estimation set of 129 reels (105 study reels color-coded for three different gun sights. Black printing - MK 14 Mod 2, 3, and 4 sight reticles. Green printing - MK 14 Mod 6 sight reticles. Red printing - MK 14 Mod 7 & 8 sight reticles. Each of the seven scenes show the same plane at different angles and distances. The 24 test reels in the set are color-coded the same way, 8 reels for each sight. Each test reel shows seven different planes at various angles and distances. Envelope colors match the color of ink used on the reel face.) Used for ground-to-air combat. *Envelope type 1.*

U.S. Navy Ship-to-Ship identification set of 27 reels (21 study reels each showing the same ship from different angles, 3 night study reels each showing seven various ships at night from a distance of 1,000 yards and 3 test reels showing seven different ships at various distances and angles.) Used for ship-to-ship combat. *Envelope type 5.*



Reel 64 from the unidentified Range Estimation set, showing seven views of the Henschel "H.S. 126" observation plane.

U.S. Army Air Forces Flying Training Command set (exact number of

reels unknown) dated 12-1-42 these reels show the name, nationality, wingspan and length of each plane in the center, show the range and approach angle in the individual scene title and have a ring sight diameter of 70 mils. Used for air-to-air combat. *Envelope type 2.*

U.S. Army Air Forces Fixed Gunnery Deflection set (20 reels) depicts the gunnery lead needed to shoot down aircraft at speeds as indicated on the reel. Used for air-to-air combat—pilot training. *Envelope type 6.*

U.S. Army Air Forces Cones of Fire set (9 reels?) depicts the bullet spray pattern from aircraft gunnery. This helped teach the pilots attack angles to avoid enemy fire. Used for air-to-air combat. *Envelope type 4.*

Unknown set (at least 86 reels) we have 16 reels depicting very early air-

(Continued on page 40)

Purpose:

1. Teaches range estimation.

2. Teaches angle off estimation.

Hold the View Master up to your eyes and look through the glass windows. You see a silhouette of an airplane.

A circular card is in the back of the device. On this card are a number of pictures of the airplane with a ring and bead drawn around them. The silhouettes are at various angles off and at various ranges. Each time you press the lever on top of the instrument, the card revolves and a new picture appears. There are a number of cards showing various airplane models that can be placed in the View Master.

1. Identify the airplane.
2. Declare your estimate of the angle off and the range. (Is it in range or out of range?).

The answer is shown in the space between the two glass windows.

From page 57 of the Fighter Gunnery Manual - U.S. Army Air Force, First Edition.

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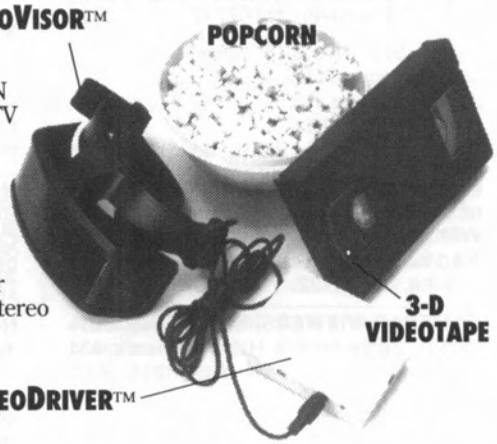

TO CAPTURE THE MAGIC OF 3-D ON YOUR HOME TV, you will need a 3-D TV StereoVisor™, and a Model 2001 StereoDriver™. Plug the StereoVisor, power supply and the video out from your VCR into the StereoDriver. Put your 3-D videotape in the VCR, turn down the lights and enjoy fantastic 3-D! Each StereoDriver can be used with four or more pairs of StereoVisors by using stereo mini plug splitters.

MOVIES

SCIENCE FICTION

_____ Cat Women of the Moon (1953) (G)
_____ The Zoo (1966) (PG)
_____ Hideous Mutant (1976)(PG)

WESTERN

_____ Outlaw Territory (1953)(G)

ADVENTURE

_____ Rising Sun (1973)(PG)

ADULTS

_____ First Kisses (1972)(R)
_____ Hawaiian Fantasy (1976)(R)
_____ Political Pleasures (1975)(R)
_____ The Stewardesses (1969)(R)
_____ Criminals (1973)(R)
_____ Sexcalibur (1982)(XXX)
_____ Chambermaids (1972)(R)

MISCELLANEOUS

_____ The World of 3D (1989)(G) $49.95
_____ 3D Teaser Vol. 1 (PG) $29.95 (Clips from 3D movies)
_____ Bill and Coo (1947)(G) - the all-bird classic "Solidized" $29.95
_____ Sam Space (1954) (G) Animated, 10 minutes, $19.95
_____ 3-D Computer Graphics (1990) 20 min. video games-super-computers! $19.95

TRAILERS

_____ 2D Trailers for 3D Movies - 22 rare trailers (50 minutes) (PG) $39.95
_____ "Solidized" 2D Trailers for 3D Movies (50 minutes) (PG) $39.95

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_____ Home 3-D Theatre @ $189.95 (1 StereoDriver, 1 StereoVisor, 1 Movie)
_____ Home 3-D Theatre for 2 @ $269.95 (1 StereoDriver, 2 StereoVisors, 2 Movies)
_____ StereoVisor @ $49.95
_____ StereoDriver @ $149.95
_____ Stereo extension cord @ $14.95
_____ Stereo Mini Plug Splitter @ $3.95
_____ *3D for the 21st Century* (40 pages) @ $5
_____ Professional Products Brochure (*Info. on Stereo Camera Switcher, Stereo Camera Lens, Stereo Video Projection, Wireless StereoVisor*) **FREE**
_____ 3-D TV T-shirt (*Colorful 3-D TV logo w/ collage of classic 3-D movies posters) Specify Sizes (Men's only), S, M, L, or XL).* $20.00
_____ VHS Tapes @ $49.95
_____ BETA @ $59.95
_____ 8MM @ $59.95
_____ Super VHS Stereo @ $69.95
_____ **SUBTOTAL**
_____ Sales Tax (7% in CA only)
_____ Postage ($6 / 3D Theatre; $10 / 3D Theatre for 2, $2 per tape or accessory item).
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EXCEPTIONALLY HOT amateur models pose in Realist format 3-D XXX slides. I have shot over 40 different models in the past two years. Sample set of 8 different & list only $25 postpaid or $5 for one. Len Rapoport, c/o MTI Group, 300 Highway 34 - Ste. 12, Aberdeen, NJ 07747.

OVER 300 TRU-VUE strips. Mint (Old dealer stock). Please send large SASE to Jean G. Poulot, 2336 NW Pettygrove #K, Portland, OR. 97210.

ORIGINAL 1941 ISSUE Versailles en Relief par les Anaglyphes, 16-page book of stereo photos, one of a series of 10. With glasses. Printed in Paris. Rare. Postpaid $25. Richard Orr, 6506 Western Ave., Omaha, NE. 68132.

CAMERAS, VIEWERS, MOUNTING SUPPLIES. SASE for list. Harry Richards, 434 S. 70th St., Milwaukee, WI. 53214, (414) 476-3372.

VIEW-MASTER AND TRU-VUE COLLECTOR'S Association. Beginning January 1991! For complete details, send a large SASE to: V.T.C.A., P.O. Box 47891, Minneapolis, MN. 55447.

GREAT SCENICS - National Parks, Lighthouses, Covered Bridges and more by stereo-photographer Ron Gustafson. Send SASE for free catalog or send $5.00 for sample Realist format color slide and catalog. Ron Gustafson, 2307 SE 8th Dr., Renton, WA. 98055.

BAUSCH & LOMB 4 × 5 illuminated stereo viewer, $200. Nord Stereo Projector, $135. Postage additional. Dr. A.H. Glick, 517 W. Park Blvd., Haddonfield, NJ 08033.

SHEER FANTASY. Freelance Models Photographers Exchange. Boudoir, Nude figure photography. Articles, photos, 3-D, much more! Published monthly. $20 yearly subscription. Free Print in Every Issue. Snap Shoppe, 1871 SW 37th Terrace, Fort Lauderdale, FL. 33312.

GAF PACKETS for sale: B381 The Littlest Angel and B871 The Little Drummer Boy. Factory Sealed, 75¢ each. First class postage: 65¢/1 packet, 85¢/2 or more packets. John F. Lawler, 862 NE Fleming Avenue, Gresham, OR. 97030.

As part of their membership, NSA members are offered *free* use of classified advertising. Members may use 100 words per year, divided into three ads with a maximum of 35 words per ad. Additional words and additional ads may be inserted at the rate of 20¢ per word. Please include payments with ads. We can not provide billings. Deadline is the first day of the month preceding publication date. Send ads to the National Stereoscopic Association, P.O. Box 14801, Columbus, OH. 43214, or call (419) 927-2930. A rate sheet for display ads is available upon request. Please send a SASE.

For Sale

REAL PHOTO POSTCARDS - Many different types available including high-quality Americana. Write for our approval request form or send $5.00 for our next postcard catalog. Postcards International, P.O. Box 2030, New Haven, CT. 06515.

3-D BATHING BEAUTIES. Sample slide/brochure only $2.00 - refundable on next order (we're positive you'll order again!). Complete set of six $8.95 or send LSASE for free brochure! 3-D Dreams, Box 1441, Orem, UT. 84059-1441.

HOT OFF THE PRESS - the Furry Freak Brothers & Wonder Wart-Hog in 3-D. New Comic book from Rip Off Press. $3.50 ppd./autographed by Roger May, P.O. Box 1271, Grass Valley, CA. 95945.

NORD STEREO PROJECTOR, modified with dimmer switch. Best offer. Diagram for building dimmer circuit into your projector, extending lamp life, saving slides. $5. Einar Berg, 467 Dana St., #B, San Luis Obispo, CA. 93401.

VIEW-MASTER single reels and packets. Send SASE for list. Interested in trades also: send list of your extras, I'll reciprocate, and we can deal. Gerald Reis, 169 Alexander Avenue, Nesconset, NY 11767.

REALIST ST-525 BC flash, Exc. + w/original instructions, $10; ST-64 DC viewer, brown w/ivory buttons, Exc./Exc.-, $50; Kodaslide Stereo Viewer I, DC, exterior is Exc.+, battery contacts show some corrosion but operation is not affected, $35; "Stereo Realist Guide" by Tydings, Exc.+, $20; "Three Dimensional Photography" by McKay, Exc.+, $40; Sawyer's ViewMaster model "C" viewer, brown, Exc.+ in original box, $10; Model "C" viewer & light attachment in original "Stereo Set" box, Exc.+, $15; Sawyer's Model 3 Transformer, for use w/light attachment for model "C" viewer, Exc.+, $7.50; Very early Tru-Vue viewer, brown plastic and metal, tiny chip out of eyepiece collar that does not affect the lens, otherwise Exc.+ in original silver and black box, $8. Please add UPS. SASE for current ViewMaster reel listing. Mark Willke, 200 SW 89th Ave., Portland, OR 97225 (503) 297-7653.

STEREO VIEWER LENSES - Two wedge-shaped lenses, each molded and embodied in 1 1/2" square frame. Precision optical quality; build, experiment. $7.95 postpaid (USA). Taylor-Merchant Corp., 212 West 35th Street, New York, N.Y. 10001.

VIEW-MASTER from United States and Europe. 1990 Catalog $1.00. Disney, Showtime, Religious, Special Subjects, U.S. and Foreign Travel. Many discontinued packets still available. Worldwide Slides, 7427-NSA Washburn Avenue South, Minneapolis, MN. 55423.

For Sale

ADULTS ONLY - Six of the sexiest nude models ever in 3-D. Each girl comes in her own set of 8 Realist format color slides for only $19.99 per set. Order Barbi, Pamela, Crissy, Marsha, Jill or Hollie. Please add $2.50 for postage and handling. Must be 18 or over to order. VISA & Mastercard welcome. For sample and catalog (adult catalog and sample must be requested or scenic sample and catalog will be sent) please send $5.00 to Ron Gustafson, 2307 SE 8th Dr., Renton, WA. 98055.

POSTCARD AUCTION - 1st National Postcard Auction, in conjunction with National Postcard Convention, Milwaukee, April, 1991. Send $5.00 for full-color catalog. Many Real Photos included. Postcards International, P.O. Box 2930, New Haven, CT. 06515.

COMPUTER USERS meet me on GEine to talk stereo. "Photo" Cat. $23. GEine star service is only $4.95 per month. Exchange information and ideas. For more info write Richard Amirault, Box 469, Malden, MA. 02148.

"NIGHTMARE ON ELM ST." collapsible 3-D viewer (Realist format). Produced for video promo and packed in video box. Never available for sale anywhere. Limited supply, 2 different viewers with scenes from Nightmare 5. Highly collectible only $10 the pair (add $3 foreign) post paid. Len Rapoport, 300 Highway 34 - Ste. 12, Aberdeen, NJ 07747.

WARREN HARDING Keystone stereo cards, total of 43. All different from a set. Covers his Alaskan Tour and several funeral cards. In very good shape. Thomas Prall, Rt. 3, Box 146, Apt. 6, Buckhannon, WV 26201.

SEXY 3-D SLIDES, over 40 different extremely Hot New York amateur models pose for the first time. High quality, hand mounted originals. Sample set of 8 different with complete picture catalogue only $25. Buy the best from someone who enjoys his work. Send check or MO to: Len Rapoport, 300 Highway 34 - Ste. 12, Aberdeen, NJ 07747.

Q-VU simplify mounting print stereo views. Sample kit $5, includes mounted view. Antique/Mod/X Styles in Black or Grey $37/100 ppd. Q-VU, 817 East 8th, Holtville, CA. 92250.

3-D GLAMOUR SLIDES. See beautiful nude girls in 3-D! Ten slide sets: $21.00 each. Samples: $3.00 each. Viewer: $5.00. Information: free. Trading encouraged. D. Cole, P.O. Box 5019, Upland, CA. 91785, (714) 981-3310.

TDC VIVID STEREO CAMERA $100. Coronet Stereo Camera with flash, folding viewer, instructions and case, $25. Mike Andrus, (717) 748-2191.

For Sale

REALIST-FORMAT slide folders for use over aluminum masks. Easy-to-write-on plain white cardboard provides stiff outer protection for your slides. 50 for $3.75, 100 for $7.00 (plus shipping). SASE for sample. Mark Willke, 200 SW 89th Ave., Portland, OR 97225.

Trade

AUSTRALIAN VIEWS and 3-D 1950s comics wanted for cash or U.S.A. views. Large stock. No U&U, Kilburn, Keystone please. All letters answered. Warren Smythe, 258 Cumberland Rd., Auburn, NSW 2144, Australia.

RAILROADS, and 1500 other selected stereo views in stock. Will trade only for Maine flat mount views - any subject or condition. Write or call for details: Blaine E. Bryant, 864 Bridgton Road, Westbrook, ME. 04092, (207) 854-4470.

Wanted

HISTORICAL, stereo photographs, photographs, documents, medals, ephemera. Aviation, Civil War, Firemen, law enforcement, Postal, sports, transportation, city and towns, Western. List $1.00. Macdonald Historic Collection, 1316 NE 113th, Portland, OR. 97220, (503) 255-7256.

VIEW-MASTER REELS, 100 different, pre-1958, $85. plus postage. Steve Kruskall, Box 418, Dover, MA. 02030.

LONG ISLAND, NY collector seeking any and all stereo views marked Long Island. Also will buy quality LI real photo postcards. Material seldom refused. Joe Trapani, 611 Haig Street, Baldwin, NY 11510.

CHESS stereos, ambrotypes, daguerreotypes, tintypes, postcards, letters, etc. of chess players. J.G. Kramer, P.O. Box 6111, Lehigh Valley, PA. 18001.

CIVIL WAR VIEWS. Also Chattanooga, Lookout Mtn., Milwaukee, or Wisconsin views. Send descriptions and pricing to: Steve Tuchalski, Milwaukee, WI. 53208.

STEREOGRAPHS of Dakota, So. Dakota and other photos for book research. Bob Kolbe, 1301 So. Duluth, S.F., SD. 57105.

ATLANTA STEREOGRAPHIC ASSOCIATION (Camera Club) in formation in Atlanta, Georgia area. Contact View-Mistress Cynthia Morton at (404) 876-6931, or Larry Moor at (404) 493-7052 for membership information or other details.

I BUY ARIZONA PHOTOGRAPHS! Stereo views, cabinet cards, mounted photographs, RP post cards, albums and photographs taken before 1920. Also interested in xeroxes of Arizona stereographs and photos for research. Will pay postage and copy costs. Jeremy Rowe, 2331 E. Del Rio Dr., Tempe, AZ 85282.

MUYBRIDGE VIEWS. Top prices paid. Also Michigan and Mining - the 3 Ms. Many views available for trade. Leonard Walle, 49525 W. Seven Mile, Northville, MI. 48167, (313) 348-9145.

Wanted

FILM CUTTER for View-Master Personal Stereo Camera. Gerald Reis, 169 Alexander Avenue, Nesconset, N.Y. 11767, (516) 361-5125.

NEW MEMBER wants mining stereos; hard rock, coal, underground, equipment, etc. Also any Colorado stereos. John Coons, 1127 Adams St., Denver, CO. 80206, (303) 399-5176.

U & U RUSSIA tour book with maps; U&U views of Spain, Russia, N. Zealand, Niagara, Java, Ceylon, Burma. V. Buttignol, 9893 W. Moccasin, Wexford, PA. 15090.

REALIST FORMAT cameras, projectors and supplies as well as a Belplasca or Veriscope for personal collection. Must be in excellent working condition. Call me Last for best offer. Len Rapoport, (201) 290-1614.

MAGICIANS, stereo views and copies of articles from previous publications, that depict conjurars. Also looking for stereo views of Houdini, balloon ascensions, Miracle of Fatime 1917. Terry Roses, 2715 Jefferson St., Duluth, MN. 55812.

LONG ISLAND, NY collector seeking any and all stereo views marked Long Island. Also will buy quality LI real photo postcards. Material seldom refused. Joe Trapani, 611 Haig Street, Baldwin, NY 11510.

NEWBURYPORT, MASS. stereo views by Meinerth, Moseley, MacIntosh, Reed and others. Buy or trade. Other formats also wanted. Scott Nason, 12 Marlboro St., Newburyport, Mass. 01950, (508) 462-2953.

WEST VIRGINIA stereo cards, any time period. Especially interested in north, central and eastern West Virginia in or near the Monongahela National Forest and Elkins. Thomas Prall, Rt. 3, Box 146, Apt. 6, Buckhannon, WV 26201.

DAKOTA TERRITORY - need photos, books, any DT paper. Especially need Illingworth Black Hills Expedition #s 826 and 853 stereo views. Brian Bade, 6 Fairway Circle, Sioux Falls, S.D. 57103, (605) 336-8385.

DELTA STEREO CAMERA incl. case; Steinheil Redufocus; close-up attachments for stereo cameras. Please write to: Gerritt Niederhaus, Schneiderstr. 5, 4800 Bielefeld 1, West Germany.

BOOKMARK COLLECTORS: Will be conducting special mail/phone bid auction of large collection including woven silks, Sterling silver, advertising and Expos incl. New Orleans, Columbian, Jamestown, Pan Am., Century of Progress and New York '39 and '64. $3. for illustrated catalogue due out in early part of 1991. John Waldsmith, P.O. 191, Sycamore, OH. 44882.

STEREO REALIST slide storage cases, chests, and files in Exc. or better condition. (Must contain Realist logo.) Mark Willke, 200 SW 89th Ave., Portland, OR 97225. (503) 297-7653.

Wanted

COLLECT, TRADE, BUY & SELL: 19th Century images (Cased, stereo, Cdv, Cabinet & large paper). Bill Lee, 8658 S. Gladiator Way, Sandy, UT. 84094. Specialties: Western, Locomotives, photographers, Indians, Mining, J. Carbutt, Expeditions, ships, Utah & Occupational.

FLORIDA STEREOS of historical value, especially Tallahassee, Tampa and Gainesville. Price and describe or send on approval, highest prices paid for pre-1890 views. No St. Augustine. Hendriksen, P.O. Box 21153, Kennedy Space Center, FL. 32815.

"ATLAS OF HUMAN ANATOMY." Must be 100% complete set with (books & reels) and in mint condition. Top price paid! Dan Skop, 128 Ninth Ave., N. Tonawanda, NY 14120, (716) 693-6699.

ILLINGWORTH VIEWS of Custer's 1874 Black Hills Expedition. Other Custer related views, CDVs, 7th Cav. Indians. Don Schwanck, 1159 Vassar, South Lyon, MI. 48178.

REALIST FORMAT CAMERAS, viewers, supplies as well as Verascope & Belplasca for personal use in glamour photography. I especially need viewers. Will pay fair market price or will be happy to trade for my glamour & nude slide sets. Please let me know what you have, Call: or write Len Rapoport, c/o MTI Group, 300 Highway 34 - Ste. 12, Aberdeen, NJ 07747, (908) 290-1614.

ST. AUGUSTINE, Anastasia Island, Jacksonville waterfront, Matanzas, Florida ca. 1875. Carlisle Indian School. Southern Plains Indians, stereos and other images. Native American Reference Library, Box 32434, Okla. City, OK. 73123.

WASHINGTON, D.C.: Interested in purchasing Washington, D.C. materials - history, architecture, memorials, buildings, maps, stereo views, guidebooks, photos, postcards, memorabilia. DeWayne Cuthbertson, 2712 Vestavia Forest Terrace, Birmingham, AL. 35216.

STEREO VIEWS of entertainer Jimmy Durante. Send description and asking price to Harry L. Young Jr., 1105 NE 16th Ave., Fort Lauderdale, FL. 33304.

MULTISLIDE SEQUENCE VIEWER wanted for Realist format stereo slides. Also want pinup and figure model stereo photos. Harry Komar, 50 Plaza Square #707, St. Louis, MO. 63103.

JOHN H. FOUCH: Yellowstone Series #38 "View down the Ravine, on the Custer Field". Wanted for historical research. Would only need to copy or rephotograph, but would most like to purchase or trade (have Fouch #20, "U.S. Wagon Train" to offer). James Brust, 1907 Rapallo Place, San Pedro, CA. 90732, (213) 832-7943 days, (213) 833-7477 eves.

NEWS FROM THE STEREOSCOPIC SOCIETY, AMERICAN BRANCH

by Norman B. Patterson

The Society

This is a year when changes have forced themselves upon the Stereoscopic Society. A growing interest in making stereoscopic views and images observed in the population at large has resulted in membership growth which has strained our ability to absorb them with our prior structure. We have created a new transparency circuit for Realist format and have divided the print circuit into two smaller groups which can each readily accept further growth. We are now comfortably prepared to accommodate new members in the three categories in which we circulate folios: large format (primarily standard viewcards), Realist format transparencies, and 2x2 matched pairs of 35mm transparencies. Those who may wish to join us in making stereo views and sharing them with others through circulating postal folios are encouraged to write to the address listed at the end of this report.

The Stereoscopic Society since its inception in 1893 has concerned itself with circulating stereo views in folios among its members for study and comment. We do have optional voting which each member can exercise on each folio. But we do not conduct salons or sponsor competitions. Annual and regional meetings, along with other formal and informal contacts are heavily encouraged among members. Our purpose if we have one, is to enjoy stereography and to aid and encourage each other to that end. I believe that there are ample opportunities for all of us to pursue competition and exhibition outside of the Society. I can not speak for the future but such a change in the Society's business like conducting salons would also change the Society. I do think there is a need for the role we now play. Suggestions that we sponsor competitions outside of folio activity will need wide support and volunteers to carry out the programs.

The Manchester Convention

The Society was well represented at the NSA convention at Manchester, NH, this past June. A sizeable number of Society members were in attendance and we were able to conduct a Stereoscopic Society meeting. We learned that the print circuit had resolved the problems associated with its division into two circuits and confirmed the process by mail ballot. The new circuits will have Dr. Dale Hammerschmidt and Judy Proffitt as their respective secretaries and are already operating at this writing. Ray Bohman, formerly the print secretary, asked to be relieved of those duties but agreed to continue as Secretary of Speedy Circuit, which is restricted to about a dozen members. Two 'Grand Tour Folios' which visit every member in each of the print circuits will be traveling and serve to keep all of the print people in touch to some extent.

Updating The Society's Name

It was also decided that the name THE STEREOSCOPIC SOCIETY of AMERICA would better reflect the reality that has existed for some years now. Such a change has been suggested with increasing frequency and will take effect barring any great negative response from the membership at large. Those at the Manchester meeting were unanimous in favor of such a change. All of the national branches of the original mother Society in England have been autonomous since the days of World War II. As a North American group we

(Continued on page 27)

New print folio secretaries Judy Proffitt and Dale Hammerschmidt at the 1990 NSA Convention, Manchester, NH. (Stereo by SSA member Thomas Gillam.)

THOMAS ATKINS GILLAM
Stereographer
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251. JUDY PROFFITT & DALE HAMMERSCHMIDT NSA '90

NEWS FROM THE OLIVER WENDELL HOLMES LIBRARY
by Marjorie & Raymond Holstein

Library Report

The Library recently conducted its first International Stereoscopic Salon with 98 entrants from 9 countries including Australia, 6, Canada, 2, Denmark, 1, England, 2, West Germany, 6, Japan, 2, Sweden, 1, Switzerland, 1, and 77 from the USA. Dr. Martin A. Folb received the Gold Medal for the "Best of Show" for his action photo of a basketball game entitled "Three Men on Their Way Up." The Silver Medal was awarded to Valeria Sardy for "Best Contemporary" for her photo "Sparkling Pendant." Thirty-nine "Honorable Mention" ribbons were also awarded.

The Salon, chaired by Dr. Fredric Weitz was conducted with the standards and the star rating recognition approved by the Photographic Society of America. A total of 392 stereo slides was reviewed by a three-man jury consisting of Weitz, Raymond Holstein and Bill Zulker. On June 9, the first public showing of 166 of the slides was viewed by almost 30 members and friends who attended the Delaware Valley semi-annual Regional Meeting of NSA held at Eastern College.

Other top winners of the Salon were first runner-up, Lorraine Vokoun, "Country Girl"; second runner-up, Valeria Sardy, "Butterfly Queen"; third runner-up, Dr. Werner Weiser, "Cat #1"; fourth runner-up, Dr. Martin Folb, "Billy Olson Breaks World P.V. Records"; and fifth runner-up, Stan White, "Market Garden."

Plans are now under way for the Second International Salon, 1991, to be announced in the coming months.

You can contact the Oliver Wendell Holmes Stereoscopic Research Library by writing to Eastern College, St. Davids, PA 19087.

Latest Gifts to the Library

Freeman Hepburn—4 Photography Books

David Burder—Anaglyph 3D Greeting Cards

Dr. Raymond Bolt—Cash Donation

Stereoscopic Society (Russ Young)—Beta Slide Folios, etc.

Harold Layer—Sp. Edition LEONARDO Publication

John Manser—Kilburn Bros. Article

Paul Wing—Subscription to STEREOSCOPY

Linda Carter—Selwyn Theatre Stereo Program

James Curtin—3D Production Samples

Dot & Ich Crane—Booklet on J.J. Reilly by Peter Palmquist

Susan Pinsky & David Starkman—Box of Stereo-Related Material

A special "thank you" to Susan Pinsky and David Starkman for the generous discount allowed on all of our library purchases from "Reel 3-D." We appreciate it!

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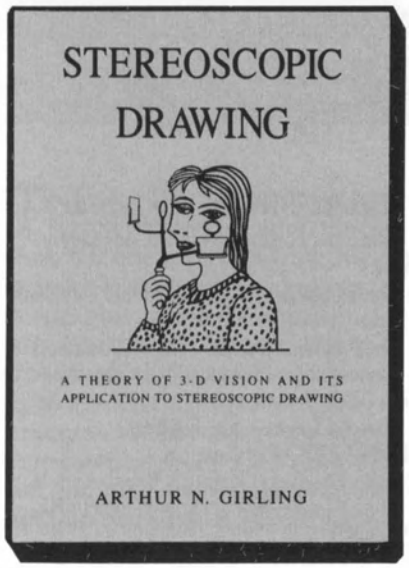
4"x5"	per	100: $8	case of 1000:	$70
STEREO (3 ¾" x 7")	per	100: $9	case of 1000:	$80
STEREO POLYESTER	per	100: 2-mil	$12 or 3-mil	$16
CABINET (4 ⅜" x 7")	per	100: $10	case of 1000:	$90
5"x7"	per	50: $7	case of 200:	$25
BOUDOIR (5½" x 8½")	per	25: $6	case of 500:	$80
8" x 10"	per	25: $8	case of 200:	$40
11" x 14"	per	10: $8	case of 100:	$45
16" x 20" (unsealed flap)	per	10: $20	case of 100:	$99

Russell Norton, PO Bx 1070, New Haven, Ct 06504-1070
US SHIPPING: $4 per order. Institutional Billing. (1991)



Stereoscopic Drawing

A Review by John Dennis

Considering the fact that stereo drawings were the first images ever seen through a stereoscope, it seems a bit odd that so little attention has been given the methods of creating them since Wheatstone's time. Countless books and articles on stereo photography, vision and history have of course *used* paired drawings to illustrate points or as decorative filler. But few texts exist whose sole purpose is to explain, whether in technical terms or the most simple English, just how the effect is achieved with pen and paper.

Arthur Girling, former editor of the ISU's *Stereoscopy*, has improved the situation considerably with his ambitious and inclusive new book, *Stereoscopic Drawing — A Theory of 3-D Vision and It's Application to Stereoscopic Drawing.* Published by the author in a limited edition, the book is written in a non-technical but precise style with large, clear illustrations and easily fused sample pairs. While some of the projection line diagrams are complex, their large full-page size makes them far easier to comprehend than some others published in small format books and magazines.

NOTHING in this book deals with computer generated graphics. While the visual principles are the same, the techniques involved with computer drawn 3-D have been left to the more specialized computer magazines and texts.

Covered are techniques for several types of stereo drawing; basic projection drawing, free standing projection, vertical plane drawing, montage, raised base and in-the-round drawing. Both anaglyphic and pair drawing are covered, and eleven pages of anaglyphs are included at the back of the book. For those completely new to 3-D imaging, there are sections on the theory of stereo vision, the history of stereoscopes, building your own stereoscope and the history of anaglyphs.

Those who have subscribed to *Stereoscopy* for several years will have been exposed to a wider range of material on stereo drawing (much of it by Arthur Girling) but for a single comprehensive source, "Stereoscopic Drawing" with its 100 8½ × 12" pages is monumental, considering how neglected the subject has been. For those interested mainly in anaglyphs, the only book that could be suggested as a companion would be "Phantogram Perspective Charts" available from Reel 3-D.

The one disappointment worthy of mentioning, for this reviewer, is that the wonderful drawing of the Picasso inspired stereoscope on the cover doesn't appear as a stereo pair or anaglyph inside the book! Price, including postage, is $25.00 (air mail) from Arthur N. Girling, 13 Gleneagle Rd., Streatham SW16 6AY, London, England. Payment may be by check, international money order, or cash. ■

View-Master

(Continued from page 35)

craft. The reels are not identified except by the name of the plane shown. Some of the reels show the same airplane from various distances and angles. Other reels show 7 different U.S. planes. Several of the reels only depict 5 or 6 planes and have a plain dark background in the unused space. Used for air-to-air combat. *Plain white envelope—exact printing unknown.*

Shipbuilding during World War II (2 reel set) Reels numbered XED-2A and 2B. These two reels show scenes from the U.S. Navy yard and the building of cargo ships to replace those sunk during the war. Each reel has an accompanying pamphlet. *These came in regular blue and white Sawyers single reel envelopes.*

Even though it has taken several years for us to compile the information we have related in this article we are sure that there are other military reels that were made and have not yet been brought to our attention. Quite often we hear news of someone finding different military reels that were heretofore unknown to us. We would appreciate learning more about these rare reels from our readers and invite you to write to us with any information you may have. ■

A new club, the VIEW-MASTER & TRU-VUE COLLECTOR'S ASSOCIATION, will publish its first bi-monthly newsletter in January, 1991. Write to P.O. Box 47891, Minneapolis, MN 55447.

A LISTING OF COMING EVENTS

Calendar

January 6 (FL)
7th Metro Miami Camera Show, Embassy Suites Hotel, 555 NW 62nd St., Ft. Lauderdale, FL. Contact Photorama USA, 20219 Mack Ave., Grosse Pointe Woods, MI 48235. Call 313-884-2243.

January 12 (FL)
3rd Tampa Camera Show & Sale, Holiday Inn, 2708 N. 50th, Tampa, FL. Contact Photorama USA.

January 13 (FL)
3rd Sarasota Camera Show & Sale, Ramada Inn-Airport, Sarasota, FL. Contact Photorama USA.

January 19 (FL)
1st Daytona Camera Show & Sale, 1909 S. Atlantic Ave., Daytona Beach, FL. Contact Photorama USA.

January 19 (CA)
14th LA Camera Show & Sale, Days Inn-Park Plaza, 600 Prairie Ave., Inglewood, CA. Contact Photorama USA.

January 20 (FL)
2nd Orlando Camera Show & Sale, Park Suites Hotel, 8978 International Dr., Orlando, FL. Contact Photorama USA.

January 26 (FL)
2nd Gainesville Camera Show & Sale, Gainesville Hilton, Gainesville, FL. Contact Photorama USA.

January 27 (AZ)
2nd Tucson Camera Show & Sale, Ramada Inn-Airport, Tucson, AZ. Contact Photorama USA.

January 27 (OH)
Giant Toledo Camera & Computer Swap, Masonic Auditorium, Toledo, OH. Contact Photorama USA.

January 28 (FL)
3rd Jacksonville Camera Show & Sale, Holiday Inn, 9150 Baymeadow Rd., Jacksonville, FL. Contact Photorama USA.

January 28 (AZ)
Phoenix Camera Show & Sale, Hilton Pavilion, 1011 W. Holmes, Mesa, AZ. Contact Photorama USA.

January 28 (MI)
Detroit Super Used Camera Show & Sale, Holiday Inn-Fairlan, Dearborn, MI. Contact Photorama USA.

February 9, 10 (FL)
Florida Photocollectors 15th Annual Camera & Photo Show, North Miami Armory, North Miami, FL. Contact FPC, Box 15224, Plantation, FL 33318. Call 305-473-1596.

March 3 (PA)
Delaware Valley Photographic and Collectors Association Spring Show, George Washington Motor Lodge, King of Prussia, PA. Contact DVPCA, Box 74, Delanco, NJ 08075.

March 24 (VA)
8th Annual Spring D.C. Antique Photo Show, Rosslyn Westpark Hotel, 1900 N. Ft. Myer Dr., Arlington, VA. Contact Russell Norton, Box 1070, New Haven, CT 06504. Call 203-562-7800.

NSA

REGIONAL MEETING

In conjunction with the San Jose Photo Fair, Jan. 12, 1990 at the Santa Clara Fairgrounds, San Jose, CA. - Check in at the NSA table. NSA meeting starts at 6:30 pm, following the Photo Fair. Bring 4 to 6 slides to share during the meeting.

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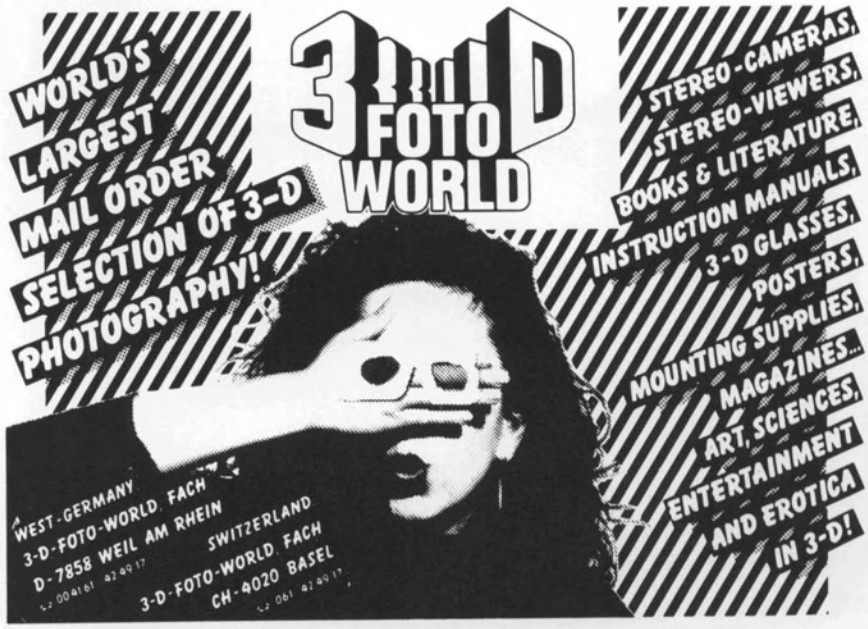
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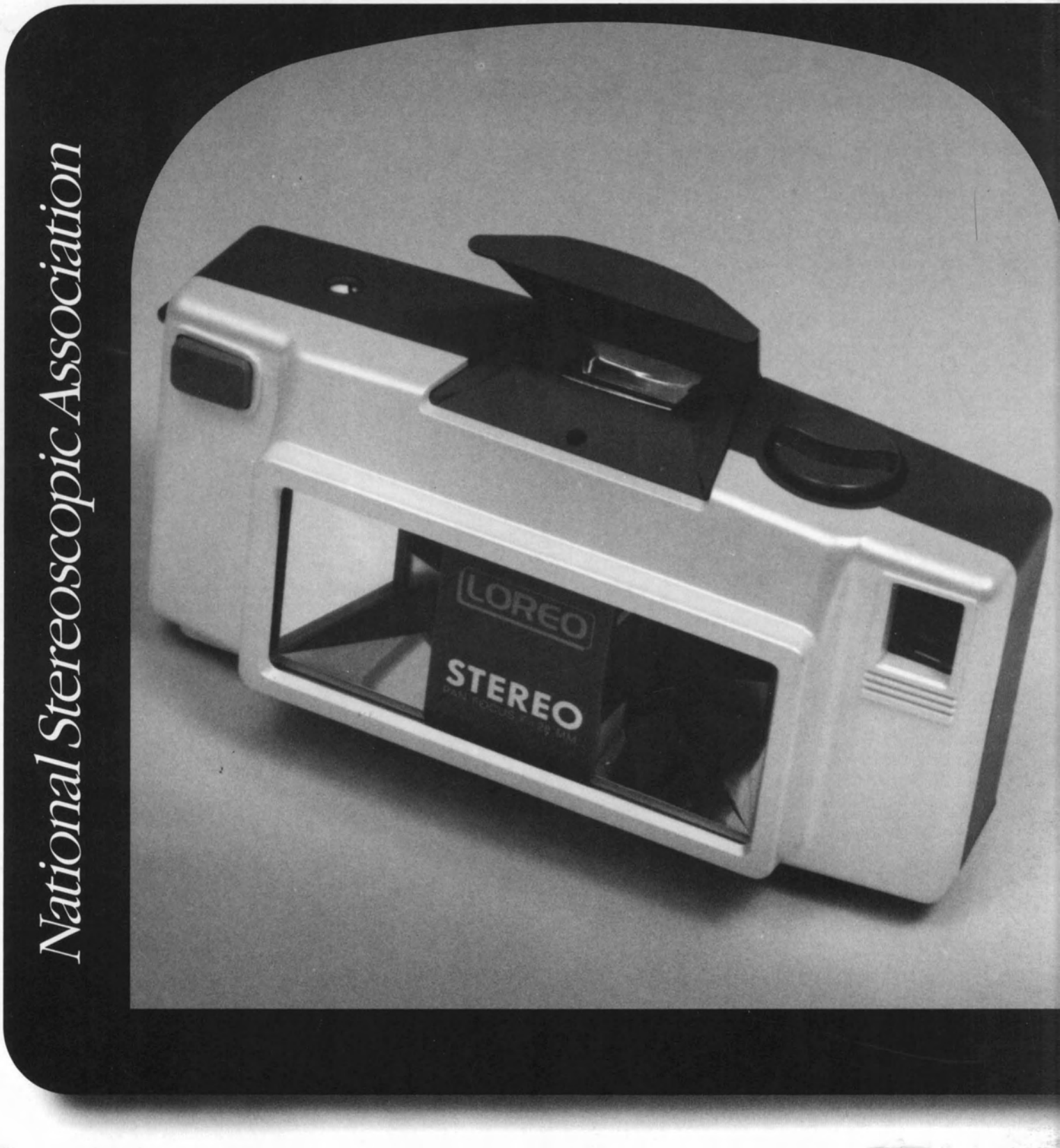
The Loreo stereo camera, advertised for several months in Europe, is now available in the U.S. and is featured on page 28. In October, 1990, this unique Hong Kong product won the "Governor's Award for Industry-Consumer Product Design" from the Federation of Hong Kong Industries.